



TETRA TECH EM, INC.

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February 23, 2006



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Mr. Greg Ham(3HS31)
On-Scene Coordinator
U.S. Environmental Protection Agency Region 3
1650 Arch Street
Philadelphia, PA 19103

Subject: Final Trip Report for the Old Hamburg Gas Station Site
EPA Contract No. EP-S3-05-02
Technical Direction Document No. E03-001-05-09-001
Document Tracking No. 0082

Dear Mr. Ham:

Tetra Tech EM Inc. (Tetra Tech) is submitting the final trip report for the Old Hamburg Gas Station site summarizing the November 2005 sampling event. If you have any questions, please contact me at (610) 364-2137.

Sincerely,

Sincerely,

Mark Sindaco
Project Manager

Enclosure

cc: TDD File

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**FINAL TRIP REPORT
FOR THE
OLD HAMBURG GAS STATION SITE
HAMBURG BOROUGH, BERKS COUNTY, PENNSYLVANIA**

Prepared for

U.S. Environmental Protection Agency Region 3
1650 Arch Street
Philadelphia, Pennsylvania 19103

Submitted by

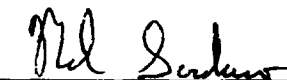
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EPA Contract No. EP-S3-05-02

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February 23, 2006

Prepared by



Mark Sindaco
Project Manager

Approved by



Marian Murphy
START Program Manager

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1.0 INTRODUCTION

Under Eastern Area Superfund Technical Assessment and Response Team (START) Contract No. EP-S3-05-02, Technical Direction Document (TDD) No. E03-001-05-09-001, U.S. Environmental Protection Agency (EPA) Region 3 tasked Tetra Tech EM Inc. (Tetra Tech) to conduct a removal site assessment at the Old Hamburg Gas Station in Tilden Township, Berks County, Pennsylvania. The purpose of the site assessment was to determine whether lead, arsenic, or antimony are present at the site at concentrations that might present a threat to human health or the environment and to determine whether a removal action is needed.

This trip report provides site background information in Section 2.0, describes site activities in Section 3.0, discusses deviations from the sampling plan in Section 4.0, summarizes sample analytical results in Section 5.0, and summarizes the site assessment and Tetra Tech's conclusions in Section 6.0. All references cited in this report are listed after the text.

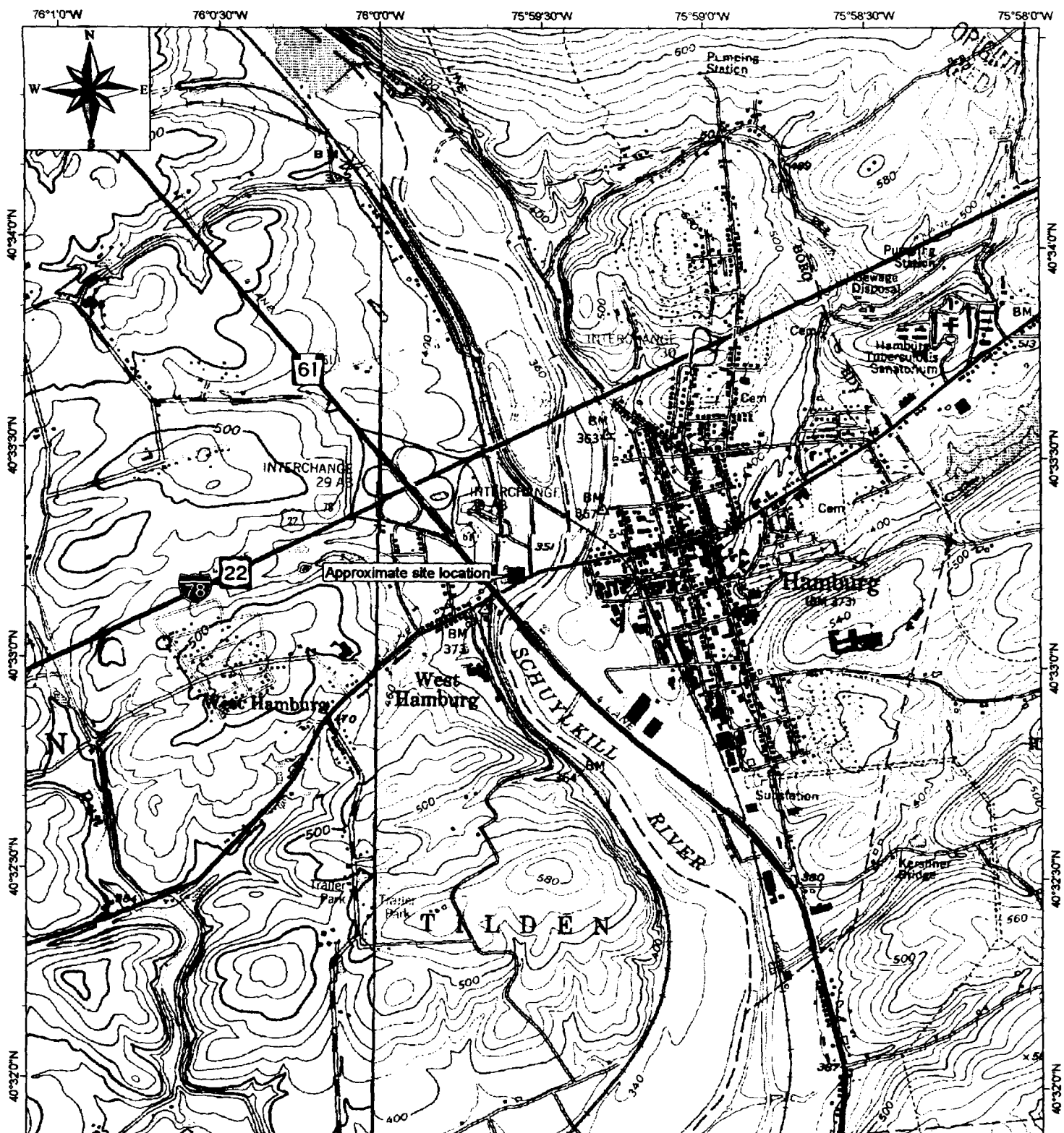
In addition, Appendix A contains a copy of Tetra Tech's field logbook notes for the November 29 through December 2, 2005, sampling event conducted at the site. Appendix B provides the laboratory data package for the samples collected, and Appendix C summarizes the sample analytical results. Finally, Appendix D provides a data quality report for the x-ray fluorescence (XRF) analysis of the samples, and Appendix E contains the photographic documentation.

2.0 BACKGROUND

This section describes the site location, presents a description of the site, and summarizes the site history.

2.1 SITE LOCATION

The Old Hamburg Gas Station site is located along the north side of West State Street and west of Industrial Drive in Tilden Township, Berks County, Pennsylvania, as shown in Figure 1

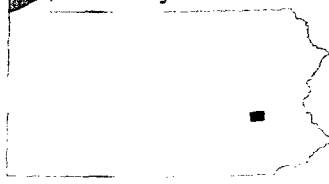


Source: Modified from USGS 7.5-Minute Series Topographic Quadrangles,
 Auburn, Pennsylvania, 1945, Photorevised 1979
 Hamburg, Pennsylvania, 1956, Photorevised 1969, 1977, Minor Revision 1994

0 0.25 0.5
 Miles

Quadrangle Location = ■

Pennsylvania



Old Hamburg Gas Station Site
 Hamburg, Berks County, Pennsylvania

Figure 1
 Site Location Map

TDD No. E03-001-05-09-001
 EPA Contract No. EP-S3-05-02

Map created on January 3, 2006
 by D. Call, Tetra Tech START



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(USGS[U.S. Geological Survey] 1945, 1956). The geographic coordinates of the approximate center of the site are 40.331232° north latitude and 75.593264° west longitude. The site is bordered to the north by open fields, to the east by Industrial Drive, to the south by West State Street, and to the west by a pond and railroad tracks.

There are two residences on the property, one is a rental house and the other is a rental mobile home. One residence and a park playground are located south of the site, on West State Street. Residences on West State Street use private drinking water wells.

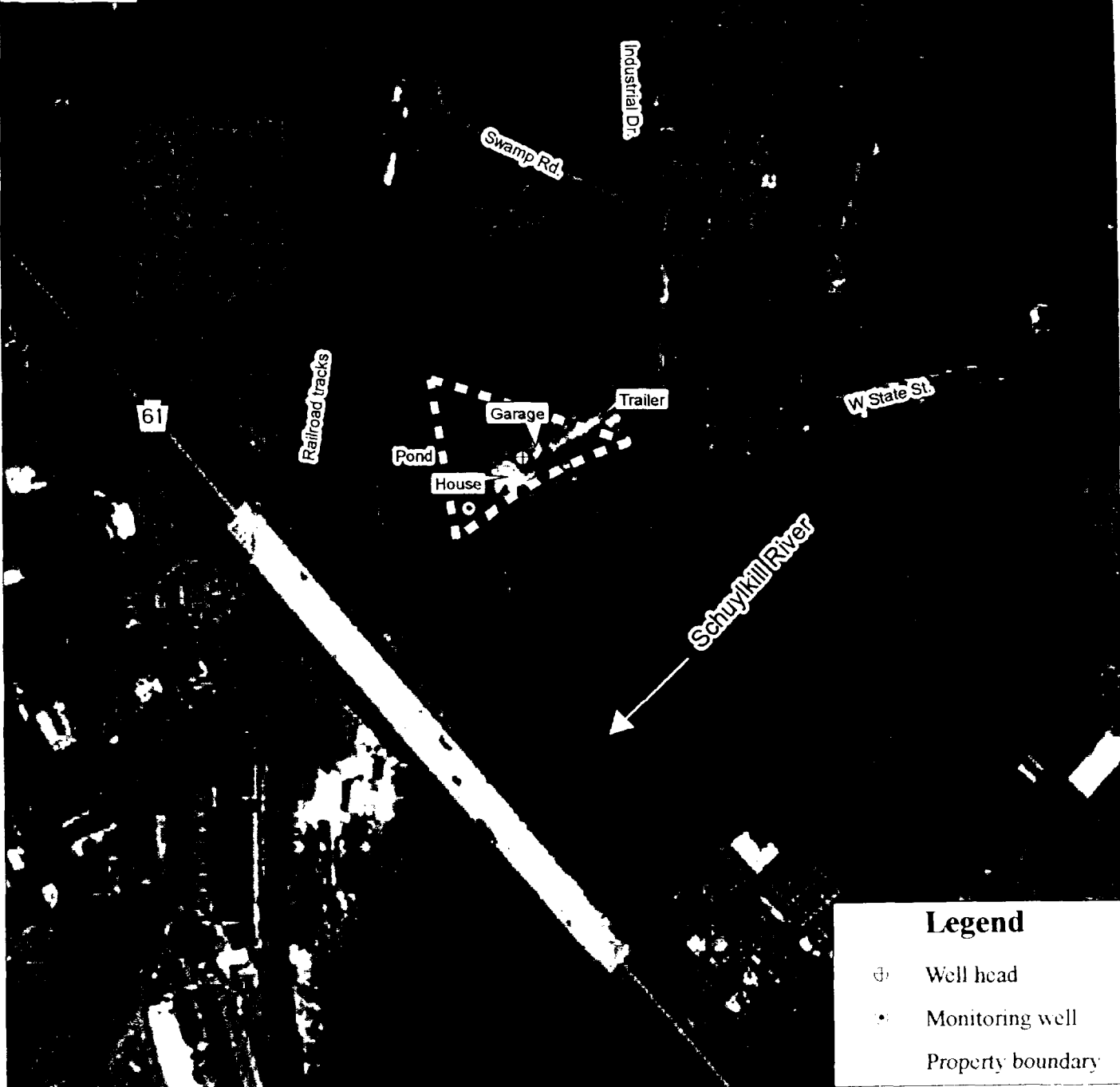
2.2 SITE DESCRIPTION

The 0.83-acre Hamburg Old Gas Station site is the former location of a greenhouse and gas station where currently two residences occupy the property, a rental house and a rental mobile home. The site is primarily characterized by open, grass-covered fields, a residence, garage, a rental trailer, residential well, an on-site monitoring well, and gravel-covered roads and parking areas. Figure 2 provides the site layout (USGS 1997). The climate of Berks County is temperate with temperatures ranging from 30° F in January to 75° F in July (Buttle and Tuttle, Ltd., 2000) Precipitation is evenly distributed throughout the year. The annual precipitation rate is between 40 and 44 inches (U.S. Department of Commerce 1993).

2.3 SITE HISTORY

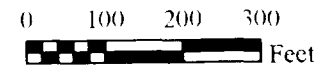
A battery manufacturing facility operated in the Borough of Hamburg from 1920 to the mid-1990s. During operations, the battery casings were split open, and the lead plates inside the batteries were removed for resmelting. The casings were used as fill material and deposited in many areas throughout the Northern Berks County area.

During the late 1990s, the Old Hamburg Gas Station property was evaluated as a part of the Hamburg Lead Site by Tetra Tech. Battery chips and casings were observed on the property and a monitoring well was placed on site. No further removal actions have been conducted by the



Legend

- ⊕ Well head
- Monitoring well
- Property boundary



Source: Modified from USGS; Pennsylvania Bureau of Topographic and Geologic Survey
Digital Orthophoto (DOQQ) mosaic for Hamburg Quadrangle (NAPP III, 1997-2001)

Quadrangle Location = ■
Pennsylvania

Old Hamburg Gas Station Site
Hamburg, Berks County, Pennsylvania

Figure 2
Site Layout Map

TDD No. E03-001-05-09-001
EPA Contract No. EP-S3-05-02

Map created on January 3, 2006
by D. Call, Tetra Tech START



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EPA at the Hamburg Old Gas Station Site to date. Several years have passed and previous sampling data are considered invalid and cannot be evaluated.

3.0 SITE ACTIVITIES

This section summarizes sample collection activities and sample handling procedures used during the removal site assessment.

3.1 SAMPLE COLLECTION

This section describes the soil, monitoring well, and residential well sampling techniques used and summarizes the identifiers, quantities, and locations for all the samples collected during the removal site assessment. All nondedicated sampling equipment was subjected to gross decontamination using a scrub brush, liquinox and distilled water, followed by a double rinse with deionized water, in accordance with Tetra Tech Standard Operating Procedure (SOP) No. 002, "General Equipment Decontamination" (Tetra Tech 1999a).

3.1.1 Soil Sampling

Tetra Tech collected 43 surface soil samples and five subsurface soil samples on November 29 and 30, 2005. Surface and subsurface soil samples were collected from a 0.83-acre grid with 40-foot-interval spacing, except in areas where buildings or parking areas would not allow for the proper spacing of the grid. Tetra Tech based the grid from the description of the property line that the home owner had given before sampling. The grid was placed where battery casings were suspected or observed to be present during prior site walk-throughs. Soil samples were collected from both the locations of established grid nodes (a grid node is the intersection of a row and column) and biased sampling locations selected based on the presence of battery casing fragments or other evidence that indicated that lead-contaminated fill was used in an area. In addition, five subsurface soil samples were collected in areas thought to have high concentrations of lead. About 10 percent of the soil samples collected at the site were shipped to a Delivery of

Analytical Services (DAS) laboratory that was assigned by EPA Region 3 Analytical Services Quality Assurance Branch for lead analysis to confirm XRF results and for arsenic and antimony analyses. XRF analysis was conducted in accordance with EPA Test Method No. 6200, "Field Portable X-Ray Fluorescence Spectrometry for the Determination of Elemental Concentrations in Soil and Sediment" (EPA 1998). Table 1 summarizes the site soil sampling activities and includes Tetra Tech's sample identifiers, sample collection dates and times, and sampling locations. Figure 3 provides sampling locations and soil results > 400 parts per million (ppm).

Soil samples were collected in accordance with Tetra Tech SOP No. 005, "Soil Sampling" (Tetra Tech 1999b). All samples were collected using dedicated polyethylene scoops and were placed in self-locking, labeled, plastic bags.

TABLE 1
SOIL SAMPLING SUMMARY

Sample Identifier	Sample Collection Date	Sample Collection Time	Sampling Location
OGS-SS-A001	11/29/2005	1425	Parking area in front of trailer
OGS-SS-A002	11/29/2005	1435	Parking area in front of trailer
OGS-SS-A003	11/29/2005	1437	Parking area in front of home
OGS-SS-A004	11/29/2005	1441	Parking area in front of home
OGS-SS-A005	11/29/2005	1442	Adjacent to MW-01
OGS-SS-A006	11/29/2005	1444	West side of home
OGS-SS-A007	11/29/2005	1445	Between home and trailer
OGS-SS-A008	11/29/2005	1451	Between home and garage
OGS-SS-A009	11/29/2005	1452	Grass area in front of garage
OGS-SS-A010	11/29/2005	1453	Next to porch of trailer
OGS-SS-A011	11/29/2005	1454	Between trailer and Industrial Drive
OGS-SS-A012	11/29/2005	1457	Next to residential wellhead
OGS-SS-A013	11/30/2005	1039	Shore line of pond
OGS-SS-A014	11/30/2005	1042	North corner of house
OGS-SS-A015	11/30/2005	1045	Next to deck on rear of the house
OGS-SS-A016	11/30/2005	1047	Northeast corner of house
OGS-SS-A017	11/30/2005	1049	Grass area behind garage
OGS-SS-A018	11/30/2005	1050	Grass area behind garage
OGS-SS-A019	11/30/2005	1051	Behind trailer
OGS-SS-A020	11/30/2005	1053	Northeast corner of trailer
OGS-SS-A021	11/30/2005	1054	Behind trailer
OGS-SS-A022	11/30/2005	1056	Lowland 40 feet north of A019
OGS-SS-A023	11/30/2005	1100	Lowland 40 feet north of A018
OGS-SS-A024	11/30/2005	1101	Lowland 40 feet north of A017
OGS-SS-A025	11/30/2005	1102	Lowland 40 feet north of A016

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TABLE 1 (Continued)
SOIL SAMPLING SUMMARY

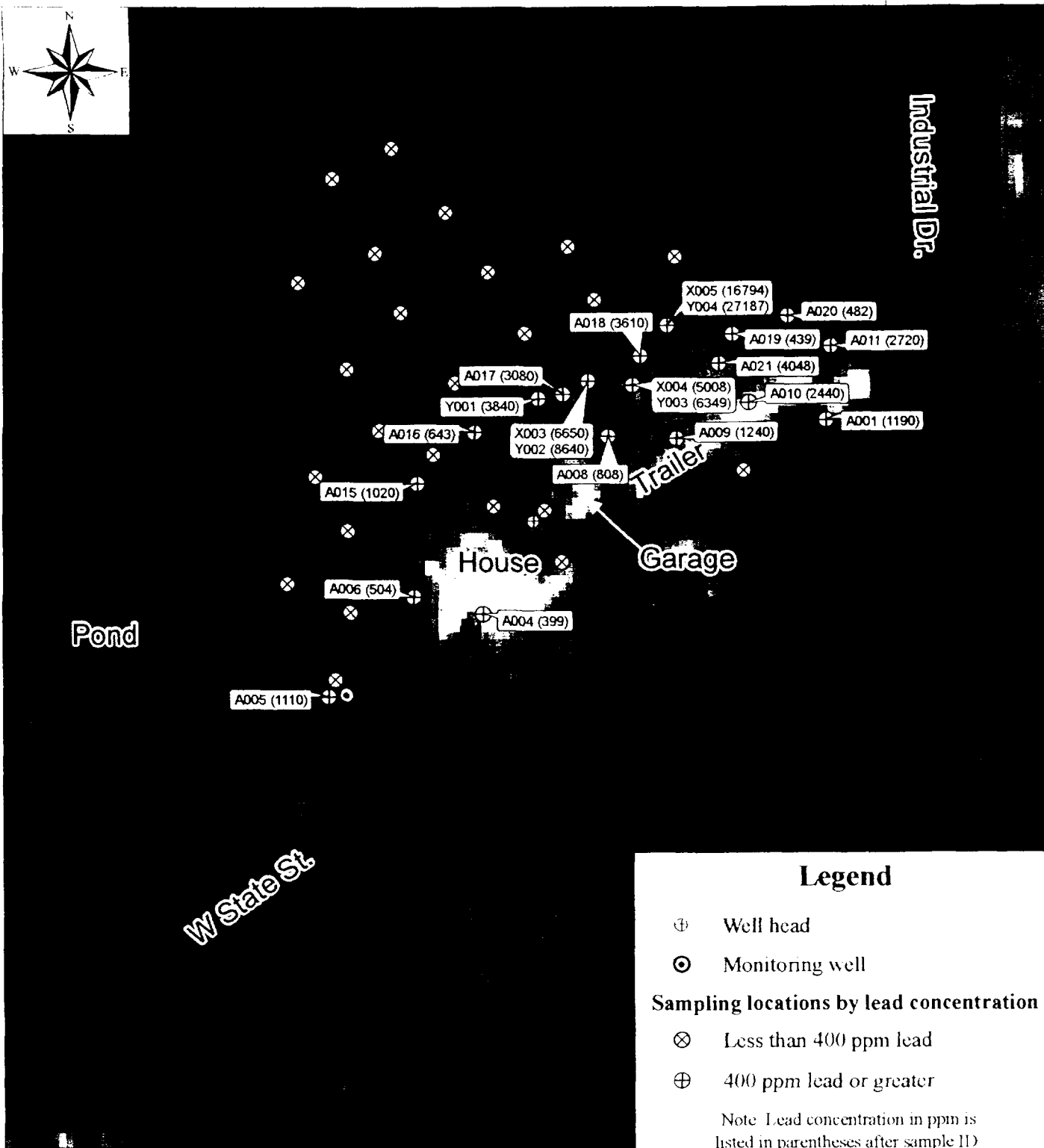
Sample ID	Sample Collection Date	Sample Collection Time	Sampling Location
OGS-SS-A026	11/30/2005	1103	Soil form under plastic liner in sandbox
OGS-SS-A027	11/30/2005	1106	Shoreline of pond
OGS-SS-A028	11/30/2005	1108	Lowland
OGS-SS-A029	11/30/2005	1112	Lowland
OGS-SS-A030	11/30/2005	1114	Lowland
OGS-SS-A032	11/30/2005	1121	Lowland
OGS-SS-A033	11/30/2005	1122	Lowland
OGS-SS-A034	11/30/2005	1123	Lowland
OGS-SS-A035	11/30/2005	1125	Lowland
OGS-SS-A036	1130/2005	1130	Lowland
OGS-SS-X001	11/30/05	1446	10 feet north of monitoring well on bank
OGS-SS-X002	11/30/05	1500	On bank between house and garage
OGS-SS-X003	11/30/05	1005	On bank behind garage
OGS-SS-X004	11/30/05	1012	On bank behind trailer
OGS-SS-X005	11/30/05	1017	On bank behind trailer
OGS-SS-Y001	11/29/05	1500	Collected 1 foot below X002
OGS-SS-Y002	11/30/05	1005	Collected 1 foot below X003
OGS-SS-Y003	11/30/05	1012	Collected 1 foot below X004
OGS-SS-Y004	11/30/05	1017	Collected 1 foot below X005
OGS-SS-Y005	11/30/05	1122	Collected 1 foot below A023
OGS-SS-Z001	11/30/05	1016	Duplicate of OGS-SS-A022
OGS-SS-Z002	11/30/05	1108	Duplicate of OGS-SS-A028

Notes:

A	= Grid surface soil sample	X	= Biased surface soil sample
OGS	= Old Hamburg Gas Station	Y	= Soil sample collected at depth
SS	= Soil sample	Z	= Field duplicate soil sample

3.1.2 Groundwater Sampling

Tetra Tech collected groundwater samples from two wells: a monitoring well on site that was installed during previous site investigations and a residential well on site. The monitoring well sample was collected in accordance with Tetra Tech SOP No. 10, "Groundwater Sampling" (Tetra Tech 2000a). The residential well sample was collected in accordance with the recommendations set forth by EPA in Section 8, "Sampling of Potable Water Supplies," in the "Environmental Investigations Standard Operating Procedures and Quality Assurance Manual" (EPA 2001). The purpose of collecting a sample from the monitoring well was to evaluate



Source: Modified from USGS; Pennsylvania Bureau of Topographic and Geologic Survey
Digital Orthophoto (DOQQ) mosaic for Hamburg Quadrangle (NAPP III, 1997-2001)

0 50 100
Feet

Quadrangle Location = ■
Pennsylvania

Old Hamburg Gas Station Site
Hamburg, Berks County, Pennsylvania

Figure 3
Sampling Location Map

TDD No. E03-001-05-09-001
EPA Contract No. EP-S3-05-02

Map created on January 3, 2006
by D. Call, Tetra Tech START



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whether the residential and monitoring wells contains lead, arsenic, or antimony at concentrations that pose a risk to human health or the environment. The monitoring and residential well samples were analyzed for target analyte list (TAL) metals, including cyanide, and target compound list (TCL) volatile organic compounds (VOCs), semivolatile organic compounds (SVOC), and pesticides and polychlorinated biphenyls (PCB).

Five samples (including one duplicate, one trip blank, and one field blank) were shipped to U.S. EPA Region 3 Office of Analytical Services and Quality Assurance Environmental Science Center in Fort Meade, Maryland, where they were analyzed for VOCs, pesticides/PCBs, TAL total metals, and cyanide. Four samples (including one duplicate and one field blank) were also shipped to Liberty Analytical Cary, North Carolina, where they were analyzed for TCL SVOCs. Table 2, Groundwater Sampling Summary, shows sample identifiers, test methods, quality assurance/quality control samples, and sampling collection dates and times. Figure 3 shows sampling locations.

Table 2 GROUNDWATER SAMPLING SUMMARY				
Sample Identifier	Analysis	QA/QC Samples	Sample Date	Sample Time
OGS-MW-01	TAL/TCL	NA	11/29/05	1100
OGS-RW-01	TAL/TCL	NA	11/29/05	1130
OGS-RW-02	TAL/TCL	Duplicate of RW-01	11/29/05	1145
OGS-FB-01	TAL/TCL	Field Blank	11/29/05	1200
OGS-TB-01	TAL/TCL	Trip Blank	11/29/05	1215

Notes:

FB = Field Blank

OGS = Old Hamburg Gas Station

MW = Monitoring Well

NA = Not Applicable

TAL = Target Analyte List Inorganics

TCL = Target Compound List Organics

TB = Trip Blank

QA/QC = Quality Assurance/Quality Control

RW = Residential Well

3.2 SAMPLE HANDLING PROCEDURES

Samples were handled and packaged in accordance with Tetra Tech SOP No. 019, "Packaging and Shipping Samples," and with the Tetra Tech "Quality Assurance Project Plan (QAPP) for START" (Tetra Tech 2000b, 2005, respectively). Five soil samples were shipped on November 29, 2005 via Federal Express to Environmental Science Center at EPA's Fort Meade, Maryland, laboratory for analysis under DAS Case No. R32383. Five water samples were shipped on November 30, 2005 and to Liberty Analytical in Cary, North Carolina for analysis under DAS Case No. 34925.

4.0 DEVIATIONS FROM SAMPLING PLAN

Tetra Tech originally proposed to collect 50 soil samples at the site. After marking proposed sampling locations and observing minimal battery casings, Tetra Tech collected only 48 soil samples.

5.0 ANALYTICAL RESULTS

This section presents the sample analytical results associated with the removal site assessment activities conducted by Tetra Tech at the Old Hamburg Gas Station site. The laboratory data package for the samples is provided in Appendix B; and a table detailing the soil sample analytical results is included in Appendix C.

5.1 SOIL ANALYTICAL RESULTS

No risk-based concentrations (RBC) or emergency removal guideline is established for lead in surface soils at residential or industrial sites. During various EPA removal actions in the Hamburg area, 400 parts per million (ppm) lead and 1,000 ppm lead have been used as the removal action levels for residential and industrial sites, respectively.

XRF results for soil samples collected during the removal site assessment at the Old Hamburg Gas Station site indicated that lead concentrations exceeded 400 ppm in 23 of the 48 soil samples collected and analyzed from the site. The average lead concentration in these 23 samples was

4,300 ppm. The average lead concentration in all 48 samples analyzed was 2,128 ppm. The highest concentration of lead in the soil samples was 27,187 ppm in sample OGS-SS-Y004. One area of lead contamination was found; the area with the contamination appears to be the filled in area in front and back of the structures on site. The area appeared to have been backfilled with battery waste. Battery casings were visible in surface soils throughout these areas.

Tetra Tech sent five of the lead-contaminated soil samples to a DAS laboratory for confirmation of the XRF results for lead. The DAS laboratory also analyzed these samples for arsenic and antimony. Arsenic was detected in all five of the samples at concentrations above the residential RBC of 0.4 ppm; the highest concentration was 16.8 ppm in sample OGS-SS-006. Antimony was detected in one of the samples at concentrations below the residential RBC of 31.4 ppm. Table C in Appendix C summarizes the lead, arsenic, and antimony results for the soil samples.

Tetra Tech also collected two duplicate soil samples at random locations. Table C in Appendix C compares the analytical results for the two pairs of duplicate samples.

5.2 GROUNDWATER ANALYTICAL RESULTS

This section describes the analytical results for groundwater samples collected from the site on November 29, 2005. Lead, arsenic, and antimony are the main contaminants of concern for the site. Because the site is a residential area, the analytical data were screened compared to EPA Region 3 RBCs for tap water (EPA 2005), and maximum contaminant levels (MCL) (EPA 2002). In the initial stage, data were compared with MCLs. If the MCL was not available for any inorganic substance or organic compound, its concentration then was compared to its RBC.

5.2.1 INORGANIC RESULTS

This section discusses analytical results for the five water samples analyzed for TAL total metals. The concentration for lead in sample OGS-MW-01 was 54 micrograms per liter ($\mu\text{g/L}$) above the removal action level (RAL) of 15 $\mu\text{g/L}$. RAL is used in place of the MCL for lead. Samples OGS-RW-01 and OGS-RW-02 (duplicate of OGS-RW-01) contained lead at 3.7 and 3.6 $\mu\text{g/L}$, respectively. Sample OGS-MW-01 also contained arsenic at 5.6 $\mu\text{g/L}$ —above its RBC of 0.045

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µg/L but below its MCL of 10 µg/L. Iron (19,200 µg/L) and manganese (7,880 µg/L) were also detected in sample OGS-MW-01 above their respective RBCs of 11,000 µg/L and 730 µg/L. Tetra Tech also collected one rinsate blank during the sampling event. Sample OGS-RB-01 was collected from nondedicated sampling tools, including a pickaxe and shovel. The lead results for the rinsate blanks indicate that the equipment was sufficiently decontaminated before use.

5.2.2 VOLATILE ORGANIC COMPOUND RESULTS

No VOCs were detected in the three groundwater samples collected at the Old Hamburg Gas Station site.

5.2.3 SEMIVOLATILE ORGANIC COMPOUND RESULTS

No SVOCs were detected in the three groundwater samples collected from the Old Hamburg Gas Station site.

5.2.4 PESTICIDE AND POLYCHLORINATED BIPHENYL RESULTS

No pesticides or PCBs were detected in the three groundwater samples from the Old Hamburg Gas Station site.

6.0 SUMMARY AND CONCLUSIONS

The removal site assessment for the Old Hamburg Gas Station site included collection of soil, and groundwater water samples. Soil samples were collected from a 0.83-acre area where lead contamination was found during past investigations. Groundwater water samples were collected from a residential well and a monitoring well that are located on the property. This section discusses these areas and the threats that they pose to public health and the environment. Using US Census Bureau estimates within one square mile of the there are 287 residents. (U.S. Census,

2000) Using this data approximately 142 residents live within the 0.5 miles and approximately 71 residents live within 0.25 miles of the site.

Areas around the surface structures have elevated lead and arsenic concentrations. The approximate area of surficial contamination is 26238.6 square feet. The site property and these areas in particular have uncontrolled access, and a four year old child recently moved from the house on the property but still visits. Also, behind the homes is an area where flooding frequently occurs and the runoff from the flooding flows into the nearby Schuylkill River, soil contamination could migrate off site during heavy rainstorms and impact neighboring properties and the river. Moreover, during periods of high wind velocities, lead-contaminated dust could be blown off site onto neighboring properties and the river. At this time the groundwater does not appear to be impacted but if the contamination is left on site, there is a chance contamination could affect the groundwater in the area and there are several homes in the area that use wells for drinking water.

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- USGS. 1956. 7.5-Minute Series Topographic Map of Hamburg, Pennsylvania, Quadrangle. Photo revised 1969, 1977, Minor revision 1994.
- USGS. 1997. Pennsylvania Bureau of Topographic and Geologic Survey Digital Orthophoto (DOQQ) mosaic for Hamburg Quadrangle (NAPP III, 1997-2001)

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APPENDIX A
FIELD LOGBOOK NOTES
(4 Pages)

Location HAMBURG, PA Date 11/29/05Project / Client OLD GAS STATION / R3TUESDAY

0800 START - SINDACO AND GAWARZEWSKI ARRIVE AT HAMBURG COMMAND POST.

WEATHER: CLOUDY, MILD, 55°F, WIND HEAVY AND VARIABLE.

0830 PREPARE SAMPLING EQUIPMENT AND BOTTLENARE FOR TODAY'S SAMPLING EVENT.

0900 ARRIVE AT 136 WEST STATE STREET. PERFORM

BRIEF SITE RECONASSANCE WITH EPA OSC-HAM.

START OBSERVES BATTERY CASINGS / PIECES THROUGHOUT BANKING AND AT BASE OF TREES AT THE REAR OF

HOUSE, TRAILER, AND GARAGE. OSC HAM AND

START DISCUSS SOIL SAMPLING GRID. THE GRID

WILL LIKELY INCREASE FROM ORIGINAL 25-FOOT INTERVALS TO 40-FOOT INTERVALS.

1000 SET UP AT MONITORING WELL OGS-MW01 FOR WATER SAMPLE.

OGS-MW01 IS IN GOOD CONDITION, WELL CHARACTERISTICS.

DIAM. 2"

DEPTH 16.28'

DEPTH TO WATER: 7.98'

WATER COLUMN HEIGHT: 8.2'

TRIPLE PURGE VOL. 4.0587 GAL.

Location HAMBURG, PADate 11/29/05Project / Client OLD GAS STATION / R3TUESDAY

1030 BEGIN PURGE. NO SIGNIFICANT ODOR OR SHEEN OBSERVED. COLOR IS MUDDY.

1045 FIRST PURGE VOLUME REACHED.

TEMP.°C	SAL‰	pH	TURB	D.O. mg/L	COND. NS/cm
17.0	0.01	7.05	209	19.99	0.457

1050 WELL DRY 3X AT APPROX 2.5 GAL.

1100 COLLECT [OGS-MW01].

1105 START PURGE AT RESIDENTIAL WELL, SPIGOT IN BACK OF HOUSE. OGS-RW01.

1125 STOP PURGE.

1130 COLLECT [OGS-RW01] FROM SPIGOT. ALSO COLLECT MS/MSD VOLUME.

1145 COLLECT [OGS-RW02] FROM SPIGOT. THIS IS A DUPLICATE OF OGS-RW01.

1200 COLLECT FIELD BLANK [OGS-FB01].

1215 COLLECT TRIP BLANK [OGS-TB01].

~~1230 COLLECT~~

1300 BEGIN TO GRID OUT AND COLLECT SOIL SAMPLES. START DROPS PIN FLAGS. SAMPLES WITH PREFIX "A" ARE COLLECTED 0-3" BELOW GRADE. SAMPLES WITH PREFIX "X" ARE COLLECTED 0-3" BELOW

Location HAMBURG, PA Date 11/29/05

Project / Client OLD GAS STATION 1 R 3

TUESDAY

4 DE FROM A BASED LOCATION. SAMPLES WITH
FIX "Y" ARE COLLECTED FROM BELOW 3". SAMPLES
TH PREFIX "Z" ARE FIELD DUPLICATE SAMPLES
TE: ALL SOIL MATRIX SAMPLES WILL BE ENTERED
TO THE LOGBOOK LATER.

RT FOLLOWS DECONTAMINATION PROTOCOL FOR ALL
N-DEDICATED EQUIPMENT.

30 RAIN BECOMES HEAVY. WIND HEAVY AND
ERABLE. START RETURNS TO COMMAND POST
D PICKS UP ICE FOR SAMPLES.

Q BEGIN PRESERVING ALL SAMPLES. ALSO BEGIN
RMS II LITE AND TRAFFIC REPORT GENERATION.

5 FINISH PACKING FT MEADE SAMPLES FOR
GROUNDWATER. SHIPPING THREE COOLERS VIA
DEX. ORGANIC TRAFFIC REPORT # = 3-161183375-

-2905-002. INORGANIC TRAFFIC REPORT # =
161183375-112905-0001. ALL FOR DAS

1. R32383. CASE SHIPMENT IS COMPLETE.

30 START OFF SITE FOR FEDEX. WILL SHIP
BERTY SAMPLES TOMORROW. ALSO SHIPPING HORIBA,
ELECTRIC PUMP, AND WATER LEVEL METER TO EAGLE TONIGHT.

Location HAMBURG, PA Date 11/30/05

Project / Client OLD GAS STATION / REGION 3

WEDNESDAY

0800 START GAWARZELSKI AND SINDARO
ARRIVE ON SITE AT HAMBURG COMMAND POST.
WILL RE-ICE SVDA BOTTLES FOR SHIP-
MENT TODAY.

BEGIN PREPARING FOR TODAY'S SOIL SAMPLING
EVENT. WILL CONTINUE TO GPS SAMPLE
POINTS.

0830 PUT YESTERDAY'S SAMPLES ON BAKE TO
DRY OUT FOR XRF.

0900 ARRIVE AT 130 W. STATE STREET.
WEATHER COOL, SUNNY, ~40°F. NOTICEABLE
WATER PONDING THAT WAS NOT THERE YESTERDAY.

0930 BEGIN LAYING OUT SAMPLE BAGS ALONG
GRID NODES AND SKETCHING SITE LAYOUT.

NOTE: ON 11/29/05, START COLLECTED
LOGS-RE001, A KINSATE BLANK, AT 1530.
BELOW ARE THE SOIL SAMPLES COLLECTED
(11/29 AND 11/30/05) DURING THE
OLD HAMBURG GAS STATION ~~GAES~~ SAMPLING
EVENT. ALL ACTIVITY FOLLOWED THE SAMPLING
AND ANALYSIS PLAN PREPARED BY START.

Location HAMBURG, PA Date 11/30/05
 Project / Client EPA OLD GAS STATION / R3
WED.

IT ALSO PHOTO DOCUMENTED SAMPLE LOCATIONS

SITE OBSERVATIONS

SAMPLE ID	DATE	TIME	COMMENTS
S-A001	11/29/05	1425	_____
-A002	11/29/05	1435	_____
-A003	11/29/05	1437	_____
-A004	11/29/05	1441	_____
-A005	11/29/05	1442	_____
-A006	11/29/05	1444	_____
S-A007	11/29/05	1445	_____
S-A008	11/29/05	1451	_____
S-A009	11/29/05	1452	_____
S-A010	11/29/05	1453	_____
S-A011	11/29/05	1454	_____
S-A012	11/29/05	1457	_____
S-A013	11/30/05	1039	_____
S-A014	11/30/05	1042	_____
S-A015	11/30/05	1045	_____
S-A016	11/30/05	1047	_____
S-A017	11/30/05	1049	CASINGS OBSERVED
S-A018	11/30/05	1050	CASINGS OBSERVED

Location HAMBURG, PA Date 11/30/05
 Project / Client OLD GAS STATION / R3
WED.

OGS-A019	11/30/05	1051	CASINGS OBSERVED
OGS-A020	11/30/05	1053	_____
OGS-A021	11/30/05	1054	_____
OGS-A022	11/30/05	1056	_____
OGS-A023	11/30/05	1100	_____
OGS-A024	11/30/05	1101	_____
OGS-A025	11/30/05	1102	_____
OGS-A026	11/30/05	1103	_____
OGS-A027	11/30/05	1106	_____
OGS-A028	11/30/05	1105	_____
OGS-A029	11/30/05	1112	_____
OGS-A030	11/30/05	1114	_____
OGS-A031	11/30/05	1116	_____
OGS-A032	11/30/05	1121	_____
OGS-A033	11/30/05	1122	_____
OGS-A034	11/30/05	1123	_____
OGS-A035	11/30/05	1125	_____
OGS-A036	11/30/05	1130	_____
OGS-X001	11/29/05	1446	_____
OGS-X002	11/29/05	1500	CASINGS OBSERVED
OGS-X003	11/30/05	1005	CASINGS OBSERVED

Location HAMBURG, PA Date 11/30/05
Project / Client OLD GAS STATION / R3
WED.

S-X004	11/30/05	1012	CASINGS OBSERVED
S-X005	11/30/05	1017	CASINGS OBSERVED
S-Y001	11/29/05	1500	~ 1 FT BGS
S-Y002	11/30/05	1005	~ 1 FT BGS
S-Y003	11/30/05	1012	~ 1 FT BGS
S-Y004	11/30/05	1017	~ 1 FT BGS
S-Y005	11/30/05	1122	~ 1 FT BGS
S-Z001	11/30/05	1016	DUP. OF A022
S-Z002	11/30/05	1108	DUP. OF A028

TE. A SITE SKETCH WAS DRAWN WITH SITE
NDMARKS AND ROUGH NODE DISTANCES. —
MPLE TOTALS: 36 "A", 5 "X", 5 "Y", 2 "Z". —
20. PACK AND PREPARE FORMS 11 LITE FOR
DAYS SVA R SHIPMENT. SHIPPING ONE
DOLER VIA FEDEX. ORGANIC TRAFFIC REPORT
= 3-161183375-110905-003 FOR CASE
= 34925 TO LIBERTY ANALYTICAL CORPORATION.
20. DOWNLOAD GPS (TRIMBLE GEO EXPLORER)
INTS AND DIGITAL PHOTOGRAPHS. —
T TODAY'S SOIL SAMPLES ON BACK. —
30. BEGIN SIEVING/PREPARING YESTERDAY'S

Location HAMBURG, PA Date 11/30/05
Project / Client OLD GAS STATION / R3
WED.

SOIL SAMPLES IN MOBILE LAB. —
1800 START OFF SITE. LOCK ALL GATES.

[Handwritten signature]

11/30/05
JOEPA GARDENWALT

ORIGINAL
(SEP)

APPENDIX B
LABORATORY DATA PACKAGE
(49 Pages)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
ENVIRONMENTAL SCIENCE CENTER
701 MAPES ROAD
FORT MEADE, MARYLAND 20755-5350

ORIGINAL
(RED)

DATE : December 21, 2005
SUBJECT: Region III Data QA Review
FROM : Khin-Cho Thaung *KCT*
Region III ESAT RPO (3EAS20)
TO : Greg Ham
Regional Program Manager (3HS31)

Attached is the organic data validation report for the Hamburg Old Gas Station site (Case#: 34925, SDG#: C02C7) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2743.

Attachment

cc: Marian Murphy (Tetra Tech EMI)

TO#: File: 0023 TDF#: 1225

OFFICE OF ANALYTICAL SERVICES AND QUALITY ASSURANCE



*Printed on 100% recycled/recyclable paper with 100% post-consumer fiber and process chlorine free.
Customer Service Hotline: 1-800-438-2474*

ORIGINAL
(RED)

Lockheed Martin Information Technology
ESAT Region 3
US EPA Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Telephone 410-305-3037 Facsimile 410-305-3597

LOCKHEED MARTIN
We never forget who we're working for™

DATE: December 20, 2005

SUBJECT: Level M3 Organic Data Validation for 34925
SDG: C02C7
Site: Hamburg Old Gas Station

FROM: Douglas Gardner *DG*
Organic Data Reviewer

Mahboobeh Mecanic *MM*
Senior Oversight Chemist

TO: Khin-Cho Thaung
ESAT Region 3 Project Officer

OVERVIEW

Case 34925, Sample Delivery Group (SDG) C02C7, consisted of four (4) aqueous samples for low concentration semivolatile analyses submitted to CompuChem (LIBRTY). The sample set included one (1) field blank and one (1) field duplicate pair. Samples were analyzed according to Contract Laboratory Program (CLP) Statement of Work (SOW) OLC03.2 through Routine Analytical Services (RAS) program.

SUMMARY

Data were validated according to Region III Modifications to the National Functional Guidelines for Organic Data Review, Level M3. Areas that may impact data usability are listed below.

MINOR PROBLEM

- The analysis of sample C02C8 had recovery of deuterated monitoring compound (DMC) benzo(a)pyrene-d12 (SDMC16) outside the lower QC limit. No positive results were reported for compounds associated with SDMC16 (benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene and benzo(g,h,i)perylene). Quantitation limits for compounds associated with SDMC16 were qualified "UL".

NOTES

- Several compounds failed precision criteria [Percent Difference (%D)] in the continuing calibration. No field samples were impacted and no data were qualified based on these %D outliers.
- No blank contaminants were found in the analyses of the field or method blanks. No data were qualified based on blank contaminants.
- Several samples had recovery of one or more DMCs outside upper QC limits as listed below. No positive results from these analyses were reported for compounds associated with these DMCs and no data were qualified based on these outliers.

Samples
C02C7, C02D0, C02D1 and SBLKAR
C02C8

DMC
4-chloroaniline-d4
bis(2-chloroethyl)ether-d8, dimethylphthalate-d6
and fluorene-d10

- Laboratory variances from 1000 ml sample volume for the analyses of all samples are reflected in dilution factors shown on the DSFs.
- Tentatively identified compounds (TICs) were reviewed during data validation. The analyses of samples C02C7 and C02C8 had one or more TICs reported. No other samples had TICs reported. Laboratory prepared TIC Form Is for samples C02C7 and C02C8 are included in Appendix C.
- No target compounds were found in field duplicate samples C02D0/C02D1; no comparison of results can be performed.

All data for Case 34925, SDG C02C7, were reviewed in accordance with Region III Modifications to the National Functional Guidelines for Organic Data Review, September 1994.

ATTACHMENTS

- | | | |
|----|------------|----------------------------------|
| 1) | Appendix A | Glossary of Data Qualifier Terms |
| 2) | Appendix B | Data Summary Forms |
| 3) | Appendix C | Tentatively Identified Compounds |
| 4) | Appendix D | Chain-of-Custody Records |
| 5) | Appendix E | Laboratory Case Narrative |

DCN: 34925.wpd

ORIGINAL
(REF)

Appendix A

Glossary of Data Qualifiers

GLOSSARY OF DATA QUALIFIER CODES (ORGANIC)

CODES RELATED TO IDENTIFICATION

(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

NO CODE = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unusable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

N = Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.

CODES RELATED TO QUANTITATION

(can be used for both positive results and sample quantitation limits):

J = Analyte present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

NJ = Qualitative identification questionable due to poor resolution. Presumptively present at approximate quantity.

Q = No analytical result.

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(RED)

Appendix B

Data Summary Forms

Page 1 of 1

Number of Soil Samples : 0

Number of Water Samples : 4

LIBRTY

Sample Number :	C02C7	C02C8		C02D0		C02D1			
Sampling Location :	OGS-FB01	OGS-MW01		OGS-RW01		OGS-RW02			
Field QC:	Field Blank			Duplicate(C02D1)		Duplicate(C02D0)			
Matrix :	Water	Water		Water		Water			
Units :	ug/L	ug/L		ug/L		ug/L			
Date Sampled :	11/29/2005	11/29/2005		11/29/2005		11/29/2005			
Time Sampled :	12:00	11:00		11:30		11:45			
Dilution Factor :	1.06	1.11		1.06		1.05			
Semivolatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzene	5.0								
Phenol	5.0								
Is (2-Chlorophenyl) ether	5.0								
2-Chlorophenol	5.0								
2-Methoxyphenol	5.0								
2,2-dimethyl(1-Chloropropane)	5.0								
Acetophenone	5.0								
4-Methylphenol	5.0								
N-Nitrosodimethylpropylamine	5.0								
Hexachloroethane	5.0								
Nitrobenzene	5.0								
Isophorone	5.0								
2-Nitrophenol	5.0								
2,4-Dimethylphenol	5.0								
Is (2-Chlorophenoxy)methane	5.0								
2,4-Dichlorophenol	5.0								
Naphthalene	5.0								
4-Chloroaniline	5.0								
Hexachlorocyclopentadiene	5.0								
Caprolactam	5.0								
4-Chlorobenzophenone	5.0								
2-Methylnaphthalene	5.0								
Hexachlorocyclopentadiene	5.0								
2,4,6-Trichlorophenol	5.0								
2,4,6-Trichlorophenol	5.0								
1,1'-Biphenyl	5.0								
2-Chloronaphthalene	5.0								
2-Nitroaniline	20								
Dimethylamine	5.0								
2,6-Dinitrofluorene	5.0								
Acetophenone	5.0								
3-Nitroaniline	20								

DATA SUMMARY FORM: BNA

Page 2 of 2

ORIGINAL
(RED)

Case #: 34025

SDG : C02C7

Site :

HAMBURG OLD GAS STATION

Lab. :

LIBRTY

Sample Number :		C02C7		C02C8		C02D0		C02D1			
Sampling Location :		OGS-FB01		OGS-MW01		OGS-RW01		OGS-RW02			
Field QC:		Field Blank				Duplicate(C02D1)		Duplicate(C02D0)			
Matrix :		Water		Water		Water		Water			
Units :		ug/L		ug/L		ug/L		ug/L			
Date Sampled :		11/29/2005		11/29/2005		11/29/2005		11/29/2005			
Time Sampled :		12:00		11:00		11:30		11:45			
Dilution Factor :		1.08		1.11		1.08		1.05			
Semivolatile Compound	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Acephenanthrene	5.0										
2,4-Dinitrophenol	20										
4-Nitrophenol	20										
Dibenzofuran	50										
2,4-Dinitrotoluene	5.0										
Diethylphthalate	5.0										
Fluorene	5.0										
4-Chlorophenyl-phenylether	5.0										
4-Nitrotoluene	20										
4,6-Dinitro-2-methylphenol	20										
N-Nitrophenylamine	5.0										
1,2,4,5-Tetrachlorobenzene	5.0										
4-Bromophenyl-phenylether	5.0										
Hexachlorobenzene	5.0										
Acenaphthene	5.0										
*Pentachlorophenol	5.0										
Phenanthrene	5.0										
Anthracene	5.0										
Di-n-butylphthalate	5.0										
Fluoranthene	5.0										
Pyrene	5.0										
Butylbenzylphthalate	5.0										
2,3-Dinitrofluorene	5.0										
Benzo(a)anthracene	5.0										
Chrysene	5.0										
bis(2-Ethylhexyl)phthalate	5.0										
Di-n-octylphthalate	5.0										
Benzo(b)fluoranthene	5.0				UL						
Benzo(k)fluoranthene	5.0				UL						
Benzo(a)pyrene	5.0				UL						
Indeno(1,2,3-cd)pyrene	5.0				UL						
Dibenzo(a,h)anthracene	5.0				UL						
Benzo(g,h,i)perylene	5.0				UL						

CRQL = Contract Required Quantitation Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor)

Revised 09/99

ORIGINAL
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Appendix C

Tentatively Identified Compounds

1LCG
LOW CONCENTRATION WATER SEMIVOLATILE ORGANICS ANALYSIS
DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

C02C8

Lab Name: COMPUCHEM

Contract: 68W01043

Lab Code: LIBRTY Case No.: 34925

Client No.:

SDG No.: C02C7

Lab Sample ID: 859702

Date Received: 12/01/2005

Lab File ID: 859702A60

Date Extracted: 12/01/2005

Sample Volume: 900 (ML)

Date Analyzed: 12/03/2005

Concentrated Extract Volume: 1000 (UL)

Dilution Factor: 1.0

Injection Volume: 1.0 (UL)

Number TICs found: 1

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (UG/L)	Q
01	=====	=====	=====	=====	=====
02		UNKNOWN	24.37	5.4	J
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

FORM I LCSV-TIC

OLC03.2

ORIGINAL
(RED)

Appendix D

Chain-of-Custody Records

Organic Traffic Report & Chain of Custody Record

Case No.

34923

DAS No:

ORIGINAL
K
RED

Region: 3 Project Code: Account Code: CERCLIS ID: Spill ID: A3ER Site Name/State: Hamburg Old Gas Station SVOAs/PA Project Leader: Mark Sindaco Action: Removal Assessment Sampling Co: Tetra Tech EMI	Date Shipped: 11/29/2005 11/30/2005 Carrier Name: FedEx Airbill: 854086120675 Shipped to: Liberty Analytical Corporation 501 Madison Avenue Cary NC 27513 (919) 379-4080	Chain of Custody Record <table border="1"> <tr> <th>Relinquished By</th> <th>(Date / Time)</th> <th>Received By</th> <th>(Date / Time)</th> </tr> <tr> <td>1</td> <td>Mark Sindaco</td> <td>11/29/2005</td> <td>14:00</td> </tr> <tr> <td>2</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> <td></td> </tr> </table>	Relinquished By	(Date / Time)	Received By	(Date / Time)	1	Mark Sindaco	11/29/2005	14:00	2				3				4				Sampler Signature: <i>Mark Sindaco</i>
Relinquished By	(Date / Time)	Received By	(Date / Time)																				
1	Mark Sindaco	11/29/2005	14:00																				
2																							
3																							
4																							

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	QC Type
C02C7	Potable Well/ Mark Sindaco	L/G	BNA (7)	601 (Ice Only), 602 (Ice Only) (2)	OGS-FB01	S: 11/29/2005 12:00		Field Blank
C02C8	Monitor Well/ Mark Sindaco	L/G	BNA (7)	603 (Ice Only), 604 (Ice Only) (2)	OGS-MW01	S: 11/29/2005 11:00		-
C02D0	Potable Well/ Mark Sindaco	L/G	BNA (7)	607 (Ice Only), 608 (Ice Only), 609 (Ice Only), 610 (Ice Only), 611 (Ice Only), 612 (Ice Only) (6)	OGS-RW01	S: 11/29/2005 11:30		-
C02D1	Potable Well/ Mark Sindaco	L/G	BNA (7)	613 (Ice Only), 614 (Ice Only) (2)	OGS-RW02	S: 11/29/2005 11:45		Field Duplicate of C02D0



Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC: C02D0	Additional Sampler Signature(s):	Chain of Custody Seal Number:
Analysis Key: BNA = CLP TCL Semivolatiles	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced?

TR Number: 3-161183375-112905-0003

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

REGION COPY

U.S EPA Region III Analytical Request Form				
RAS CASE #: CT3569		DAS #:		NSF #:
Date: 11/21/05		QAPP/SAP:		Data Validation Level: DM M3
Site: HAMBURG OLD GAS STATION				
Address: 136 WEST STATE STREET		City: HAMBURG		State: PA
Latitude: 40.331232° north		Longitude: 75.593264° west		
Program: SUPERFUND		CERCLIS#: PAN00030616	Activity: RS Removal Site Evaluation	
Account #: 2006T03N302DC6CA3ERRS00		Operable Unit: 63	Spill ID: A3ER	
Preparer: MARIAN MURPHY		Phone: 610-364-2129	Fax: 610-485-8587	E-mail: marian.murphy@ttemi.com
OSC/RPM: GREG HAM		Phone: 215-814-3194	Fax: 610-562-8530	E-mail: ham.greg@epa.gov
Site Leader: JOSEPH GAWARZEWSKI		Phone: 610-364-2135	Fax: 610-485-8587	E-mail: joseph.gawarzewski@ttemi.com
EPA CO: LORRIE MURRAY		Contract Type: START 3 EASTERN	Prime: TETRA TECH EMI	Sub:
Analytical TAT: 7 days PR		Analytical + Validation TAT: 21 Days		
Ship Date From: 11/29/05		Ship Date To: 12/01/05		
Samples	Method	Parameter	Matrix	
5	CLP SOW OLC03.2	LC SVOA's	Drinking Water	
Instruction: Please email unvalidated data to the above email addresses. Please provide validated data in electronic format.				

ORIGINAL
(10/25)

ORIGINAL
(RED)

Appendix E

Laboratory Case Narrative

Case: 34925
SDG: C02C7

Example Calculation for the Semivolatile Fraction

RRF Calculation

$$RRF = (A_x \cdot C_{is}) / (A_{is} \cdot C_x)$$

Where: A_x =Area of the characteristic ion (EICP) for the compound to be measured
 A_{is} =Area of the characteristic ion (EICP) for the specific internal standard
 C_{is} =Concentration of the internal standard
 C_x =Concentration of the compound to be measured

Example: Phenol-d5 from SST020AC

A_x =	60929
A_{is} =	41281
C_{is} =	20
C_x =	20

RRF= 1.476

Concentration Calculation

$$\text{Concentration}(\mu\text{g/L}) = (A_x \cdot I_s \cdot D_f \cdot V_f) / (A_{is} \cdot RRF \cdot V_i \cdot V_t)$$

Where: A_x =Area of the characteristic ion (EICP) for the compound to be measured
 A_{is} =Area of the characteristic ion (EICP) for the specific internal standard
 I_s =Amount of the internal standard added, in nanograms
RRF=Relative response factor from the continuing calibration standard
 V_t =Total volume of water extracted (in liters)
 V_f =Extract Volume
 V_i =Volume injected
 D_f =Dilution factor

Example: Phenol-d5 from C02C7

A_x =	87461
A_{is} =	38853
I_s =	20
RRF=	1.476
V_t =	0.925
V_f =	1.0
V_i =	1
D_f =	1

Concentration($\mu\text{g/L}$)= 33



U.S. EPA REGION III
Analytical Services & Quality Assurance Branch
Environmental Science Center
701 Mapes Road
Fort Meade, Maryland 20755-5350




LABORATORY FINAL RESULTS

HAMBURG OLD GAS STATION

Lab Request # : REQ06056
Request Form : DAS R32383
Report prepared on: 12/15/2005
Site contact(s) : Greg Ham (3HS31)
Joseph Gawarzewski

Approved for release:


ASQAB Representative

ASQAB Contact: Jill Bilyeu, Quality Assurance Officer
Phone: 410-305-2638
E-mail: Bilyeu.Jill@epa.gov

U.S. EPA REGION III ANALYTICAL SERVICES & QUALITY ASSURANCE BRANCH

SITE NAME : HAMBURG OLD GAS STATION

LAB REQUEST #: REQ06056

TESTS REQUESTED

INORGANICS

051130

Metals Analysis

01	02	03	04
X	X	X	X

ORGANICS

051130

Organics by Gas Chromatography

01	02	03	04	05
X	X	X	X	

Volatile Organics by Purge & Trap GC/MS

X	X	X	X	X
---	---	---	---	---

(X = Test Requested)

USEPA Region III
Analytical Services & Quality Assurance Branch

SITE NAME: HAMBURG OLD GAS STATION
LAB REQUEST #: RQ06056

QUALIFIER CODE AND GLOSSARY DEFINITIONS

Qualifier Codes Applied to Sample Results

- B Not detected substantially above (10 times) the level reported in the laboratory or field blanks (includes field, trip, rinsate, and equipment blanks).
- C See report narrative for analyst's comments and observations concerning this result.
- E Value exceeds a theoretically greater value (e.g., dissolved>total, orthophosphate>total phosphorus). However, the difference is within the expected precision of the analytical techniques and is not statistically significant.
- I An interference exists which masks the true response. See report narrative for explanation.
- J The identification of the analyte is acceptable; the reported value is an estimate.
- K The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value.
- L The identification of the analyte is acceptable; the reported value may be biased low. The actual value is expected to be greater than the reported value.
- N There is presumptive evidence that the analyte is present; the analyte is reported as a tentative identification.
- NJ There is presumptive evidence that the analyte is present; the analyte is reported as a tentative identification. The reported value is an estimate.
- NA Not analyzed - analysis not performed.
- NR Not requested - analysis not requested.
- R The presence or absence of the analyte can not be determined from the data due to severe quality control problems. The data are rejected and considered unusable.
- T Tentatively Identified Compound. Identified as a result of a library search using the EPA/NIST Mass Spectral Library. Standards were not used to verify the identity and quantity of the compound. The reported value is an estimate.
- U The analyte was not detected at or above the quantitation limit.
- UJ The analyte was not detected at or above the quantitation limit. The quantitation limit is an estimate.
- UL The analyte was not detected. The quantitation limit is probably higher due to indications of a low bias.
- < Sample value below quantitation limit. Quantitation limit reported.

Qualifier Codes Applied to Quality Control Results

- A Quality control value is outside acceptance limits.
- D Sample and/or laboratory duplicate values are below the quantitation limit. No precision data reported.
- TD Spike recovery too dilute for accurate quantitation.

Qualifier Codes Applied to Microbiology Results

- < Less than.
- <= Less than or equal to.
- >= Greater than or equal to.
- > Greater than.

Glossary:

- () Numbers in parentheses are analytical spike recoveries (e.g., post-digestion spikes).
- [] Numbers in brackets are matrix spike recoveries (e.g., pre-digestion spikes).
- CFU Colony Forming Unit.
- ISF A prepared sample aliquot fortified with a known concentration of target analyte(s) or a representative subset of target analytes and analyzed. Its purpose is to determine whether the sample matrix contributes bias to the analytical results.
- LSF A sample aliquot fortified with a known concentration of analyte(s) or a representative subset of target analytes and carried throughout the entire lab method. It is analyzed to determine whether the sample matrix contributes bias to the analytical results.
- MS/MSD Matrix spike/matrix spike duplicate; a known increment of target analyte added to a sample before preparation or analyses.
- MSA Value obtained by Method of Standard Additions in which calibration standards are prepared in the sample matrix (see EPA method 200.9).
- RPD Relative Percent Difference (RPD) is used to measure precision when duplicates are analyzed.
- %Rec Percent Recovery (%Rec) is an expression of accuracy.

U.S. EPA REGION III ANALYTICAL SERVICES & QUALITY ASSURANCE BRANCH

SITE NAME: HAMBURG OLD GAS STATION

LAB REQUEST # REQ06056

SAMPLE DESCRIPTIONS

<u>Sample #</u>	<u>Station</u>	<u>Description</u>	<u>Matrix</u>	<u>Type</u>	<u>End Collection</u>	
					<u>Date</u>	<u>Time</u>
05113001	MW01	OGS-MW01	Drinking Water	GRAB	11/29/2005	11:00
05113002	RW01	OGS-RW01	Drinking Water	GRAB	11/29/2005	11:30
05113003	RW-02	OGS-RW-02	Drinking Water	GRAB	11/29/2005	11:45
05113004	FB01	OGS-FB01	Aqueous Blank	GRAB	11/29/2005	12:00
05113005	TB01	OGS-TB01	Aqueous Blank	GRAB	11/29/2005	12:15

U.S EPA REGION III ANALYTICAL SERVICES & QUALITY ASSURANCE BRANCH

SITE NAME : HAMBURG OLD GAS STATION

LAB REQUEST #: REQ06056

INORGANIC ANALYTICAL SAMPLE RESULTS

	SAMPLE NUMBER:	05113001	05113002	05113003	05113004
	STATION ID:	MW01	RW01	RW-02	FB01
		SAMPLE	SAMPLE	SAMPLE	FIELD BLANK
Metals Analysis					
Aluminum		5630 ug/L	<30 ug/L	<30 ug/L	<30 ug/L
Antimony		<2.0 ug/L	<2.0 ug/L	<2.0 ug/L	<2.0 ug/L
Arsenic	MCL	5.6 ug/L	<1.0 ug/L	<1.0 ug/L	<1.0 ug/L
Barium		58 ug/L	42 ug/L	42 ug/L	<10 ug/L
Beryllium		<1.0 ug/L	<1.0 ug/L	<1.0 ug/L	<1.0 ug/L
Cadmium		<1.0 ug/L	<1.0 ug/L	<1.0 ug/L	<1.0 ug/L
Calcium		43400 ug/L	40800 ug/L	41200 ug/L	<2000 ug/L
Chromium		6.9 ug/L	<2.0 ug/L	<2.0 ug/L	<2.0 ug/L
Cobalt		14 ug/L	<1.0 ug/L	<1.0 ug/L	<1.0 ug/L
Copper		16 ug/L	196 ug/L	190 ug/L	<2.0 ug/L
Iron		19200 ug/L	<100 ug/L	<100 ug/L	<100 ug/L
Lead	RAK 15	54 ug/L	3.7 ug/L	3.6 ug/L	<1.0 ug/L
Magnesium		12200 ug/L	9140 ug/L	9290 ug/L	<2000 ug/L
Manganese		7880 ug/L	74 ug/L	73 ug/L	<1.0 ug/L
Nickel		13 ug/L	2.7 ug/L	2.7 ug/L	<1.0 ug/L
Potassium		4690 ug/L	<2000 ug/L	<2000 ug/L	<2000 ug/L
Selenium		<5.0 ug/L	<5.0 ug/L	<5.0 ug/L	<5.0 ug/L
Silver		<1.0 ug/L	<1.0 ug/L	<1.0 ug/L	<1.0 ug/L
Sodium		32000 ug/L	18700 ug/L	18900 ug/L	<2000 ug/L
Thallium		<1.0 ug/L	<1.0 ug/L	<1.0 ug/L	<1.0 ug/L
Vanadium		<1.0 ug/L	<1.0 ug/L	<1.0 ug/L	<1.0 ug/L

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ORIGINAL
(RED)

U.S EPA REGION III ANALYTICAL SERVICES & QUALITY ASSURANCE BRANCH

SITE NAME : HAMBURG OLD GAS STATION

LAB REQUEST #: REQ06056

INORGANIC ANALYTICAL SAMPLE RESULTS

	SAMPLE NUMBER:	05113001	05113002	05113003	05113004
	STATION ID:	MW01	RW01	RW-02	FB01
		SAMPLE	SAMPLE	SAMPLE	FIELD BLANK
Metals Analysis					
Zinc		40 ug/L	16 ug/L	16 ug/L	<2.5 ug/L

U.S EPA REGION III ANALYTICAL SERVICES & QUALITY ASSURANCE BRANCH

SITE NAME: HAMBURG OLD GAS

STATION

LAB REQUEST #: REQ06056

INORGANIC QUALITY CONTROL RESULTS

SAMPLE NUMBER:	05113002	05113003
STATION ID:	RW01	RW-02

Units:	RPD	% REC
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Metals Analysis

Aluminum	D	[97]
Antimony	D	[97]
Arsenic	D	[96]
Barium	5	[93]
Beryllium	D	[98]
Cadmium	D	[97]
Calcium	5	[89]
Chromium	D	[96]
Cobalt	D	[95]
Copper	6	[94]
Iron	D	[98]
Lead	5	[106]
Magnesium	6	[96]
Manganese	6	[102]
Nickel	1	[91]
Potassium	D	[107]
Selenium	D	[98]
Silver	D	[94]
Sodium	5	[95]
Thallium	D	[96]
Vanadium	D	[97]
Zinc	6	[96]

[] = LSF

() = ISF

ORIGINAL
(000)

Metals Determinations

Analysts:

R.L. Costas
Chemist

J.R. Dorsey
Chemist

Methods:

Samples from HAMBURG OLD GAS STATION (REQ06056) were prepared for analysis by acid digestion and analyzed by inductively coupled plasma-atomic emission spectrometry (ICP-AES) and inductively coupled plasma-mass spectrometry (ICP-MS) on 12/05/2005. The results are presented in the attached table. The following are the digestion and analytical techniques and methods:

Digestion Methods

EPA Method 200.2¹ and Internal SOP R3-QA155.2

Analytical Methods

EPA Method 200.7¹, analysis by ICP-AES, and Internal SOP R3-QA159.1

EPA Method 200.8¹, analysis by ICP-MS, and Internal SOP R3-QA116.1

¹ EPA Methods for the Determination of Metals in Environmental Samples, May 1994.

NOTE: The reporting limits for some analytes may be higher than requested values due to daily acceptable quality control criteria. Qualified data below the reporting limit may be available upon request.

U.S. EPA REGION III ANALYTICAL SERVICES & QUALITY ASSURANCE BRANCH

SITE NAME: HAMBURG OLD GAS STATION

LAB REQUEST #: REQ06056

ORGANIC ANALYTICAL SAMPLE RESULTS

Sample Number:	05113001	05113002	05113003	05113004	05113005
Station ID:	MW01	RW01	RW-02	FB01	TB01
	SAMPLE	SAMPLE	SAMPLE	FIELD BLANK	TRIP BLANK
Organics by Gas Chromatography					
Aldrin		UL ug/L	UL ug/L	UL ug/L	
Heptachlor		UL ug/L	UL ug/L	UL ug/L	
Volatile Organics by Purge & Trap GC/MS					
Acetone	2 B ug/L	2 B ug/L	3 B ug/L	1.6 ug/L	2.1 ug/L
Benzene	0.08 B ug/L		0.06 B ug/L	0.02 J ug/L	0.03 J ug/L
Chloroform		0.06 B ug/L	0.07 B ug/L	1.3 ug/L	1.3 ug/L
1,4-Dichlorobenzene	0.4 B ug/L	0.05 B ug/L	0.05 B ug/L	0.06 B ug/L	0.05 B ug/L
Ethyl Benzene	0.03 B ug/L			0.2 J ug/L	0.1 J ug/L
Methylene Chloride				0.2 J ug/L	0.2 J ug/L
Naphthalene				0.3 J ug/L	0.3 J ug/L
Toluene	0.2 B ug/L		0.08 B ug/L	0.1 J ug/L	0.2 J ug/L
1,2,4-Trimethylbenzene	0.03 J ug/L				
O-Xylene	0.05 B ug/L			0.2 J ug/L	0.2 J ug/L
M&P-Xylene Isomers	0.1 B ug/L			0.2 J ug/L	0.2 J ug/L

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ORIGINAL
(330)

U.S. EPA REGION III ANALYTICAL SERVICES & QUALITY ASSURANCE BRANCH

SITE NAME: HAMBURG OLD GAS STATION

LAB REQUEST #: REQ06056

ORGANIC QUALITY CONTROL (SURROGATE RECOVERIES)

Matrix: WATER

	SAMPLE NUMBER:	05113001	05113002	05113003	05113004	05113005
	STATION ID:	MW01	RW01	RW-02	FR01	TR01
<u>SURROGATES</u>	<u>LIMITS</u>	<u>SAMPLE</u>	<u>SAMPLE</u>	<u>SAMPLE</u>	<u>FIELD BLANK</u>	<u>TRIP BLANK</u>
Organics by Gas Chromatography	Range	% REC	% REC	% REC	% REC	% REC
Decachlorobiphenyl	(30-150)		115	106	98	
Tetrachloro-M-Xylene	(30-150)		90	95	88	
Volatile Organics by Purge & Trap GC/MS	Range	% REC	% REC	% REC	% REC	% REC
Bromofluorobenzene	(86-115)	103	103	99	104	100
d4-1,2-Dichloroethane	(76-114)	104	102	104	103	101
d8-Toluene	(88-110)	99	99	101	100	100

US EPA REGION III ANALYTICAL SERVICES & QUALITY ASSURANCE BRANCH

SITE NAME : HAMBURG OLD GAS STATION

LAB REQUEST # : REQ06056

ORGANIC QUALITY CONTROL (MATRIX SPIKE RECOVERIES)

Matrix : WATER

SAMPLE NUMBER : 05113002

STATION ID : RW01

ANALYTES

	Spike	Recovery	Recovery	RPD	
	<u>MS</u>	<u>MSD</u>	<u>Limits</u>	<u>RPD</u>	<u>Limits</u>
Organics by Gas Chromatography	†	†	Range	RPD	Limit
Aldrin					
alpha BHC					
alpha Chlordane					
beta BHC					
4,4'-DDD					
4,4'-DDE					
4,4'-DDT					
delta BHC					
Dieldrin					
Endosulfan Sulfate					
Endosulfan-I					
Endosulfan-II					
Endrin					
Endrin Aldehyde					
Endrin Ketone					
gamma BHC (Lindane)					
gamma Chlordane					
Heptachlor					
Heptachlor Epoxide					
Methoxychlor					
Volatile Organics by Purge & Trap GC/MS	†	†	Range	RPD	Limit
Benzene	101	96	(76-127)	5	11
Chlorobenzene	99	97	(75-130)	2	13
1,1-Dichloroethene	102	99	(61-145)	4	14
Toluene	101	95	(76-125)	6	13
Trichloroethene	100	94	(71-120)	6	14

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US EPA REGION III ANALYTICAL SERVICES & QUALITY ASSURANCE BRANCH

SITE NAME : HAMBURG OLD GAS STATION

LAB REQUEST # : REQ06056

ORGANIC QUALITY CONTROL (MATRIX SPIKE RECOVERIES)

Matrix : WATER

SAMPLE NUMBER : 05113004

STATION ID : FB01

ANALYTES	Spike	Recovery	Recovery	RPD	
	MS	MSD	Limits	RPD	Limits
Organics by Gas Chromatography	%	%	Range	RPD	Limit
Aldrin	41	20 A	(40-120)	71 A	22
alpha BHC	103	92		11	
alpha Chlordane	96	77		22	
beta BHC	122	114		6	
4,4'-DDD	116	109		6	
4,4'-DDE	105	86		20	
4,4'-DDT	118	109	(38-127)	8	27
delta BHC	115	104		10	
Dieldrin	116	105	(52-126)	10	18
Endosulfan Sulfate	124	121		3	
Endosulfan-I	108	95		14	
Endosulfan-II	127	126		1	
Endrin	116	106	(56-121)	9	21
Endrin Aldehyde	204 A	201 A		1	
Endrin Ketone	132	127		4	
gamma BHC (Lindane)	114	100	(56-123)	14	15
gamma Chlordane	97	75	(50-150)	26 A	
Heptachlor	66	44	(40-131)	40 A	20
Heptachlor Epoxide	102	84		20	
Methoxychlor	119	114		4	
Volatile Organics by Purge & Trap GC/MS	%	%	Range	RPD	Limit
Benzene					
Chlorobenzene					
1,1-Dichloroethene					
Toluene					
Trichloroethene					

ORIGINAL
10/11/80

U.S. EPA REGION III ANALYTICAL SERVICES & QUALITY ASSURANCE BRANCH

SITE NAME: HAMBURG OLD GAS STATION

LAB REQUEST #:REQ06056

ORGANIC LABORATORY REAGENT BLANK RESULTS

Organics by Gas Chromatography

Date Prepared: NOV-30-2005

SURROGATES

Decachlorobiphenyl

62 1 REC

Tetrachloro-M-Xylene

67 1 REC

U.S. EPA REGION III ANALYTICAL SERVICES & QUALITY ASSURANCE BRANCH

TEST NAME: HAMBURG OLD GAS STATION

LAB REQUEST #: REQ06056

ORGANIC LABORATORY REAGENT BLANK RESULTS

Volatile Organics by Purge & Trap GC/MS

Date Prepared: NOV-30-2005

SURROGATES

Bromofluorobenzene	101	% REC
d4-1,2-Dichloroethane	98	% REC
d8-Toluene	99	% REC

ANALYTES

1,2,4-Trichlorobenzene	0.09 J	ug/L
1,3-Dichlorobenzene	0.02 J	ug/L
1,4-Dichlorobenzene	0.04 J	ug/L

U.S. EPA REGION III ANALYTICAL SERVICES & QUALITY ASSURANCE BRANCH

SITE NAME: HAMBURG OLD GAS STATION

LAB REQUEST #: REQ06056

SUPPLEMENTAL SAMPLE INFORMATION

Organics by Gas Chromatography

<u>SAMPLE #</u>	<u>SAMPLE NQL FACTOR</u>
05113001	.21
05113002	.2
05113003	.2
05113004	.22

Volatile Organics by Purge & Trap GC/MS

<u>SAMPLE #</u>	<u>SAMPLE NQL FACTOR</u>
05113001	1
05113002	1
05113003	1
05113004	1
05113005	1

NQL Factor is an overall correction factor applied to the method's Nominal Quantitation Limit to correct for analytical adjustments made during the analysis.

Pesticide/PCB Analysis by Gas Chromatography

Analyst:

Arnold Turner
Chemist

Method:

Two aqueous samples and a field reagent blank from HAMBURG OLD GAS STATION (REQ06056) were analyzed for organochlorine pesticides and polychlorinated biphenyls (PCBs) by capillary gas chromatography – electron capture detector. The samples were collected on November 29, 2005. The samples were extracted by continuous liquid-liquid extraction on November 30, 2005, according to SOP R3QA-219.3. The samples were analyzed December 5, 2005, according to SOP R3-QA207.3, which is consolidated method derived from EPA methods NPDES 608, RCRA 8081B & 8082A, and CLP OLM04.2 & OLC03.2.

The sample extracts were concentrated five-fold their normal final volume in order to achieve the requested quantitation limits. Only detected results are reported. No target analytes were detected.

Quality Control:

All initial calibration acceptance criteria were met except for endrin aldehyde in the second source initial calibration verification standard. This analyte was not detected in any of the samples. All calibration verification standards met acceptance criteria.

Due to a laboratory accident, sample 051130-01 was not analyzed.

All surrogate recoveries were within acceptance limits (30-150%). Unless indicated otherwise, acceptance limits for matrix spike recoveries and relative percent difference (RPD) values are 50 – 150% and $\leq 25\%$, respectively. Matrix spike recoveries and RPD values that were outside of acceptance limits were qualified with an "A". A blank matrix was spiked with the full suite of single component organochlorine pesticides. Percent recoveries for heptachlor and aldrin were below acceptance limits (70-130%); non-detects in the samples were qualified with a "UL".

ORIGINAL
(RED)

Volatile Organic Analysis by GC/MS

Analyst:

Peggy Zawodny
Environmental Scientist

Method:

Samples from HAMBURG OLD GAS STATION (REQ06056) were analyzed for the presence of volatile organic compounds amenable to purge and trap and identifiable by mass spectrometry. The samples were collected on November 29 and analyzed on November 30, 2005, according to SOP R3-QA210.4 which is a consolidated method derived from EPA methods SDWA 524.2, NPDES 624, RCRA 5030/8260 and the Superfund CLP Statement of Work.

The nominal quantitation limit (NQL) for each compound is as listed in the attached table, except 2-butanone (2 ug/L).

There were no tentatively identified compounds detected.

ORIGINAL
(RED)

USEPA- Region III Analytical Services and Quality Assurance Branch (ASQAB)
Volatile Organics Analysis - Low Level Aqueous
Nominal Quantitation Limits (NQL)

Units: Water = ug/L

NPTC = Non-Priority Pollutant Target Compound

Actual Quantitation Limit = (NQL Factor) X NQL

CAS #	ANALYTE	NQL	CAS #	ANALYTE	NQL
67-64-1	Acetone NPTC	1	563-58-6	1,1-Dichloro-1-propene NPTC	0.5
71-43-2	Benzene	0.5	10061-01-5	cis-1,3-Dichloropropene	0.5
108-86-1	Bromobenzene NPTC	0.5	10061-02-6	trans-1,3-Dichloropropene	0.5
74-97-5	Bromochloromethane NPTC	0.5	100-41-4	Ethylbenzene	0.5
75-27-4	Bromodichloromethane	0.5	87-68-3	Hexachlorobutadiene	0.5
75-25-2	Bromoform	0.5	591-78-6	2-Hexanone NPTC	1
74-83-9	Bromomethane	0.5	98-82-8	Isopropylbenzene NPTC	0.5
78-93-3	2-Butanone NPTC	1	99-87-6	p-Isopropyltoluene NPTC	0.5
104-51-8	n-Butylbenzene NPTC	0.5	79-20-9	Methyl Acetate NPTC	0.5
135-98-8	sec-Butylbenzene NPTC	0.5	1634-04-4	Methyl tert-Butyl Ether (MTBE) NPTC	0.5
98-06-6	tert-Butylbenzene NPTC	0.5	108-87-2	Methyl Cyclohexane NPTC	0.5
75-15-0	Carbon Disulfide NPTC	0.5	75-09-2	Methylene Chloride	0.5
56-23-5	Carbon Tetrachloride	0.5	108-10-1	4-Methyl-2-pentanone NPTC	1
108-90-7	Chlorobenzene	0.5	91-20-3	Naphthalene	0.5
75-00-3	Chloroethane	0.5	103-65-1	n-Propylbenzene NPTC	0.5
65-66-3	Chloroform	0.5	100-42-5	Styrene NPTC	1
74-87-3	Chloromethane	0.5	630-20-6	1,1,1,2-Tetrachloroethane NPTC	0.5
95-49-8	2-Chlorotoluene NPTC	0.5	79-34-5	1,1,2,2-Tetrachloroethane	0.5
106-43-4	4-Chlorotoluene NPTC	0.5	127-18-4	Tetrachloroethene	0.5
110-82-7	Cyclohexane NPTC	0.5	87-61-6	1,2,3-Trichlorobenzene NPTC	0.5
124-48-1	Dibromochloromethane	0.5	120-82-1	1,2,4-Trichlorobenzene	0.5
96-12-8	1,2-Dibromo-3-chloropropane NPTC	0.5	71-55-6	1,1,1-Trichloroethane	0.5
106-93-4	1,2-Dibromoethane (EDB) NPTC	0.5	79-00-5	1,1,2-Trichloroethane	0.5
74-95-3	Dibromomethane NPTC	0.5	79-01-6	Trichloroethene	0.5
95-50-1	1,2-Dichlorobenzene	0.5	75-69-4	Trichlorofluoromethane NPTC	0.5
541-73-1	1,3-Dichlorobenzene	0.5	96-18-4	1,2,3-Trichloropropane NPTC	0.5
106-46-7	1,4-Dichlorobenzene	0.5	76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) NPTC	0.5
75-71-8	Dichlorodifluoromethane NPTC	0.5	93-63-6	1,2,4-Trimethylbenzene NPTC	0.5
75-34-3	1,1-Dichloroethane	0.5	108-67-8	1,3,5-Trimethylbenzene NPTC	0.5
107-06-2	1,2-Dichloroethane	0.5	108-88-3	Toluene	0.5
75-35-4	1,1-Dichloroethene	0.5	108-05-4	Vinyl Acetate NPTC	0.5
156-59-2	cis-1,2-Dichloroethene NPTC	0.5	75-01-4	Vinyl Chloride	0.5
156-60-5	trans-1,2-Dichloroethene	0.5	108-38-3	m-Xylene (m & p isomers NPTC	1
78-87-5	1,2-Dichloropropane	0.5	106-42-3	p-Xylene together) NPTC	
142-28-9	1,3-Dichloropropane NPTC	0.5	95-47-6	o-Xylene NPTC	1
594-20-7	2,2-Dichloropropane NPTC	0.5			

110-75-8 2-Chloroethylvinyl ether (NQL = 1) will be analyzed upon request for samples preserved by chilling to 4C (no addition of acid).

The "Nominal Quantitation Limit" factor is an overall correction factor applied to the method's NQLs to account for sample dilutions. For example, if the NQL factor for a water sample is 2, the Actual Quantitation Limit for vinyl chloride would be 1 ug/L (i.e., 2 x 0.5 ug/L).

Rev. July 22, 2005

ORIGINAL
(RED)

USEPA - Region III
Analytical Services and Quality Assurance Branch (ASQAB)
Pesticide and PCB Analysis
Nominal Quantitation Limits (NQL)
Matrix: Aqueous Units: µg/L

Actual Quantitation Limit = (NQL Factor) X NQL

CAS Number	Pesticide	NQL		CAS Number	PCB	NQL
309-00-2	Aldrin	0.05		12674-11-1	Aroclor 1016	1.0
319-84-6	alpha-BHC	0.05		11104-28-2	Aroclor 1221	1.0
319-85-7	beta-BHC	0.05		11141-16-5	Aroclor 1232	1.0
31-86-8	delta-BHC	0.05		53469-21-9	Aroclor 1242	1.0
58-89-8	gamma-BHC (Lindane)	0.05		12672-29-6	Aroclor 1248	1.0
5103-71-9	alpha-Chlordane	0.05		11097-69-1	Aroclor 1254	1.0
5103-74-2	gamma-Chlordane	0.05		11096-82-5	Aroclor 1260	1.0
57-74-9	Chlordane	1.0				
72-54-8	4,4'-DDD	0.10				
72-55-9	4,4'-DDE	0.10				
50-29-3	4,4'-DDT	0.10				
60-57-1	Dieldrin	0.10				
959-98-8	Endosulfan I	0.05				
33213-65-9	Endosulfan II	0.10				
1031-07-8	Endosulfan Sulfate	0.10				
72-20-8	Endrin	0.10				
7421-93-4	Endrin Aldehyde	0.10				
53494-70-5	Endrin Ketone	0.10				
76-44-8	Heptachlor	0.05				
1024-57-3	Heptachlor Epoxide	0.05				
72-43-5	Methoxychlor	0.5				
8001-35-2	Toxaphene	5.0				

The "Nominal Quantitation Limit" listed for each target compound is based on the Superfund CLP Protocol. The Actual Quantitation Limits are related to the NQLs by the NQL Factor. This NQL Factor reflects procedural steps, e.g., extract dilution, which influence quantitation limits.

Revised March 26, 2004



USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No:
DAS No: R32383
SDG No: L

Date Shipped: 11/29/2005 Carrier Name: FedEx Airbill: 854086120664 Shipped to: US EPA Region 3 OAS/QA Environmental Science Cente 701 Mapes Road Fort George Meade MD 20755	Chain of Custody Record		Sampler Signature: <i>[Signature]</i>	For Lab Use Only Lab Contract No: _____ Unit Price: _____ Transfer To: _____ Lab Contract No: _____ Unit Price: _____	
	Relinquished By	(Date / Time)	Received By		(Date / Time)
	1 <i>[Signature]</i>	11/29/05 15:00	<i>[Signature]</i>		11/30/05 12:30
	2				
	3				
4					

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No/ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
C02C1	Monitor Well/ Mark Sindaco	L/G	PEST (7), VOA (7)	558 (Ice Only), 559 (Ice Only), 560 (HCL), 561 (HCL), 562 (HCL) (5)	OGS-MW01	S: 11/29/2005	11:00	MC02C1	05113001
C02C2	Potable Well/ Mark Sindaco	L/G	PEST (7), VOA (7)	566 (Ice Only), 567 (Ice Only), 568 (Ice Only), 569 (Ice Only), 570 (Ice Only), 571 (Ice Only), 572 (HCL), 573 (HCL), 574 (HCL), 575 (HCL), 576 (HCL), 577 (HCL), 578 (HCL), 579 (HCL), 580 (HCL) (15)	OGS-RW01	S: 11/29/2005	11:30	MC02C2	02
C02C3	Potable Well/ Mark Sindaco	L/G	PEST (7), VOA (7)	583 (Ice Only), 584 (Ice Only), 585 (HCL), 586 (HCL), 587 (HCL) (5)	OGS-RW-02	S: 11/29/2005	11:45	MC02C3	03
C02C4	Potable Well/ Mark Sindaco	L/G	PEST (7), VOA (7)	590 (Ice Only), 591 (Ice Only), 592 (HCL), 593 (HCL), 594 (HCL) (5)	OGS-FB01	S: 11/29/2005	12:00	MC02C4	04
C02C6	Potable Well/ Mark Sindaco	L/G	VOA (7)	598 (HCL), 599 (HCL), 600 (HCL) (3)	OGS-TB01	S: 11/29/2005	12:15		05

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC: C02C2	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number:
Analysis Key: PEST = CLP TCL Pesticide/PCBs, VOA = CLP TCL Volatiles	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Custody Seal Intact? <input type="checkbox"/>	Shipment Iced? <input type="checkbox"/>

TR Number: 3-161183375-112905-0002

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

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USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No:
DAS No: R32383
SDG No: L

Date Shipped: 11/29/2005 Carrier Name: FedEx Airbill: 854086120664 Shipped to: US EPA Region 3 OAS/QA Environmental Science Center 701 Mapes Road Fort George Meade MD 20755	Chain of Custody Record		Sampler Signature: <i>RL Sindaco</i>	For Lab Use Only Lab Contract No: Unit Price: Transfer To: Lab Contract No: Unit Price:	
	Relinquished By	(Date / Time)	Received By		(Date / Time)
	1 <i>RL Sindaco</i>	<i>11/29/05 1:00</i>	<i>Meetha</i>		<i>11/30/05 12:30</i>
	2				
	3				
4					

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No/ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		ORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
MC02C1	Monitor Well/ Mark Sindaco	L/G	CN (7), Metals (7)	563 (NaOH), 564 (HNO3) (2)	OGS-MW01	S: 11/29/2005	11:00	C02C1	05113001
MC02C2	Potable Well/ Mark Sindaco	L/G	CN (7), Metals (7)	581 (NaOH), 582 (HNO3) (2)	OGS-RW01	S: 11/29/2005	11:30	C02C2	05113002
MC02C3	Potable Well/ Mark Sindaco	L/G	CN (7), Metals (7)	588 (NaOH), 589 (HNO3) (2)	OGS-RW-02	S: 11/29/2005	11:45	C02C3	05113003
MC02C4	Potable Well/ Mark Sindaco	L/G	CN (7), Metals (7)	595 (NaOH), 596 (HNO3) (2)	OGS-FB01	S: 11/29/2005	12:00	C02C4	05113004
MC02C5	Potable Well/ Mark Sindaco	L/G	Lead Arsen (7)	597 (HNO3) (1)	OGS-RB01	S: 11/29/2005	15:30		05113005 MLK 11/30/05

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC: MC02C2	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Custody Seal intact? <input type="checkbox"/>	Shipment Iced? <input type="checkbox"/>
CN = Cyanide, Lead Arsen = ICP AES (Pb, As, Sb), Metals = ICPMS + ICPAES (Al, Ca, Fe, K, Mg, Na) +				

TR Number: 3-161183375-112905-0001

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

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FedEx US Airbill
Express

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Form
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FedEx Retrieval Copy

1 From
Date 11/29/05 Sender's FedEx Account Number 2445 14405

Sender's Name Mark Sindaco Phone 267 446 2445

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City Hamburg State Pa ZIP 19526

2 Your Internal Billing Reference 90030010509001

3 To
Recipient's Name Pat Sawinski Phone 410 305 2667

Company U.S. EPA OASQA Lab Region 3

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Address
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8540 8612 0664

4a Express Package Service To add SATURDAY Delivery, see Section 6. Packages up to 150 lbs. To select location.

1 ☒ FedEx Priority Overnight Next business morning. 5 ☐ FedEx Standard Overnight Next business afternoon. 6 ☐ FedEx First Overnight Earliest next business morning delivery to select locations.

3 ☐ FedEx 2Day Second business day. 20 ☐ FedEx Express Saver Third business day.

FedEx Saver rates may apply. Minimum charge: One pound rate.

4b Express Freight Service To add SATURDAY Delivery, see Section 6. Packages over 150 lbs. To select location.

7 ☐ FedEx 1Day Freight Next business day. 8 ☐ FedEx 2Day Freight Second business day. 83 ☐ FedEx 3Day Freight Third business day.

* Call for Confirmation.

5 Packaging * Declared value limit \$500.

6 ☐ FedEx Envelope. 2 ☐ FedEx Pak. 3 ☐ FedEx Box. 4 ☐ FedEx Tube. 1 ☒ Other.

FedEx Pak, Small Pak, FedEx Large Pak, and FedEx Heavy Pak.

6 Special Handling

3 ☐ SATURDAY Delivery Available ONLY for FedEx Priority Overnight, FedEx 2Day, FedEx 1Day Freight, and FedEx 2Day Freight to select ZIP codes. 1 ☐ HOLD Wednesday at FedEx Location Not available for FedEx First Overnight. 31 ☐ HOLD Saturday at FedEx Location Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

Does this shipment contain dangerous goods?

☒ No 4 ☐ Yes. One box must be attached. ☐ Yes. Shipper's Declaration required. 6 ☐ Dry Ice Dry Ice UN 1845. ☐ Cargo Aircraft Only.

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging.

7 Payment B/E to: Enter FedEx Acct. No. or Credit Card No. below. Obtain Recip. Acct. No.

1 ☒ Sender Acct. No. in Section 1 will be billed. 2 ☐ Recipient 3 ☐ Third Party 4 ☐ Credit Card 5 ☐ Cash/Check

FedEx Acct. No. Credit Card No. Exp. Date

Total Packages 3 Total Weight 11

Total Charges 520

Our liability is limited to \$100 unless you declare a higher value. See the current FedEx Service Guide for details.

8 NEW Residential Delivery Signature Options If you require a signature, check Direct or Indirect.

☐ No Signature Required If no one is available at package may be left without obtaining a signature for delivery. ☐ Direct Signature Anytime at recipient's address may sign for delivery. Fee applies. ☐ Indirect Signature If no one is available at recipient's address, anyone at a neighboring address may sign for delivery. Fee applies.

520

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ORIGINAL
11/29/05
(638)



U.S. EPA REGION III
Analytical Services & Quality Assurance Branch
Environmental Science Center
701 Mapes Road
Fort Meade, Maryland 20755-5350



LABORATORY FINAL RESULTS

HAMBURG OLD GAS STATION

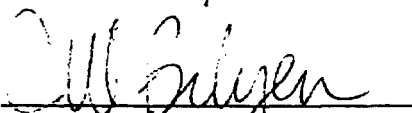
Lab Request # : REQ06057

Request Form : DAS R32383

Report prepared on: 12/21/2005

Site contact(s) : Greg Ham (3HS31)
Joseph Gawarzewski

Approved for release:



ASQAB Representative

ASQAB Contact: Jill Bilyeu, Quality Assurance Officer
Phone: 410-305-2638
E-mail: Bilyeu.Jill@epa.gov

U.S. EPA REGION III ANALYTICAL SERVICES & QUALITY ASSURANCE BRANCH

SITE NAME: HAMBURG OLD GAS STATION

LAB REQUEST # REQ06057

SAMPLE DESCRIPTIONS

<u>Sample #</u>	<u>Station</u>	<u>Description</u>	<u>Matrix</u>	<u>Type</u>	<u>End Collection</u> <u>Date</u> <u>Time</u>
05113006	MW01	OGS-MW01	Drinking Water	GRAB	11/29/2005 11:00
05113007	RW01	OGS-RW01	Drinking Water	GRAB	11/29/2005 11:30
05113008	RW-02	OGS-RW-02	Drinking Water	GRAB	11/29/2005 11:45
05113009	FB01	OGS-FB01	Drinking Water	GRAB	11/29/2005 12:00
05113010	RB01	OGS-RB01	Drinking Water	GRAB	11/29/2005 15:30
05120213	OGS-SS-019	OGS-SS-019	Soil	GRAB	11/30/2005 10:51
05120214	OGS-SS-004	OGS-SS-004	Soil	GRAB	11/29/2005 14:41
05120215	OGS-SS-006	OGS-SS-006	Soil	GRAB	11/29/2005 14:44
05120216	OGS-SS-020	OGS-SS-020	Soil	GRAB	11/30/2005 10:53
05120217	OGS-SS-016	OGS-SS-016	Soil	GRAB	11/30/2005 10:47

U.S. EPA REGION III ANALYTICAL SERVICES & QUALITY ASSURANCE BRANCH

SITE NAME : HAMBURG OLD GAS STATION

LAB REQUEST #: REQ06057

TESTS REQUESTED

INORGANICS		051130				
		06	07	08	09	10
Metals Analysis		X	X	X	X	X
Total Cyanide		X	X	X	X	
INORGANICS		051202				
		13	14	15	16	17
Metals Analysis		X	X	X	X	X

(X = Test Requested)

USEPA Region III
Analytical Services & Quality Assurance Branch

SITE NAME: HAMBURG OLD GAS STATION
LAB REQUEST #: REQ06057

QUALIFIER CODE AND GLOSSARY DEFINITIONS

Qualifier Codes Applied to Sample Results

- B Not detected substantially above (10 times) the level reported in the laboratory or field blanks (includes field, trip, rinsate, and equipment blanks).
- C See report narrative for analyst's comments and observations concerning this result.
- E Value exceeds a theoretically greater value (e.g., dissolved>total, orthophosphate>total phosphorus). However, the difference is within the expected precision of the analytical techniques and is not statistically significant.
- I An interference exists which masks the true response. See report narrative for explanation.
- J The identification of the analyte is acceptable; the reported value is an estimate.
- K The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value.
- L The identification of the analyte is acceptable; the reported value may be biased low. The actual value is expected to be greater than the reported value.
- N There is presumptive evidence that the analyte is present; the analyte is reported as a tentative identification.
- NJ There is presumptive evidence that the analyte is present; the analyte is reported as a tentative identification. The reported value is an estimate.
- NA Not analyzed - analysis not performed.
- NR Not requested - analysis not requested.
- R The presence or absence of the analyte can not be determined from the data due to severe quality control problems. The data are rejected and considered unusable.
- T Tentatively Identified Compound. Identified as a result of a library search using the EPA/NIST Mass Spectral Library. Standards were not used to verify the identity and quantity of the compound. The reported value is an estimate.
- U The analyte was not detected at or above the quantitation limit.
- UJ The analyte was not detected at or above the quantitation limit. The quantitation limit is an estimate.
- UL The analyte was not detected. The quantitation limit is probably higher due to indications of a low bias.
- < Sample value below quantitation limit. Quantitation limit reported.

Qualifier Codes Applied to Quality Control Results

- A Quality control value is outside acceptance limits.
- D Sample and/or laboratory duplicate values are below the quantitation limit. No precision data reported.
- TD Spike recovery too dilute for accurate quantitation.

Qualifier Codes Applied to Microbiology Results

- < Less than.
- <= Less than or equal to.
- >= Greater than or equal to.
- > Greater than.

Glossary:

- () Numbers in parentheses are analytical spike recoveries (e.g., post-digestion spikes).
- [] Numbers in brackets are matrix spike recoveries (e.g., pre-digestion spikes).
- CFU Colony Forming Unit.
- ISF A prepared sample aliquot fortified with a known concentration of target analyte(s) or a representative subset of target analytes and analyzed. Its purpose is to determine whether the sample matrix contributes bias to the analytical results.
- LSF A sample aliquot fortified with a known concentration of analyte(s) or a representative subset of target analytes and carried throughout the entire lab method. It is analyzed to determine whether the sample matrix contributes bias to the analytical results.
- MS/MSD Matrix spike/matrix spike duplicate; a known increment of target analyte added to a sample before preparation or analyses.
- MSA Value obtained by Method of Standard Additions in which calibration standards are prepared in the sample matrix (see EPA method 200.9).
- RPD Relative Percent Difference (RPD) is used to measure precision when duplicates are analyzed.
- %Rec Percent Recovery (%Rec) is an expression of accuracy.

U.S EPA REGION III ANALYTICAL SERVICES & QUALITY ASSURANCE BRANCH

SITE NAME : HAMBURG OLD GAS STATION

LAB REQUEST #: REQ06057

INORGANIC ANALYTICAL SAMPLE RESULTS

	SAMPLE NUMBER:	05113006	05113007	05113008	05113009	05113010
	STATION ID:	MM01	RM01	RM-02	FB01	RB01
		SAMPLE	SAMPLE	SAMPLE	FIELD BLANK	RINSEATE
<hr/>						
Metals Analysis						
<hr/>						
Antimony						< 60 ug/L
Arsenic						< 40 ug/L
Lead						< 50 ug/L
Mercury		< 0.2 ug/L	< 0.2 ug/L	< 0.2 ug/L	< 0.2 ug/L	
<hr/>						
Total Cyanide						
<hr/>						
Cyanide		<0.01 mg/L	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L	

U.S EPA REGION III ANALYTICAL SERVICES & QUALITY ASSURANCE BRANCH

SITE NAME : HAMBURG OLD GAS STATION

LAB REQUEST #: REQ06057

INORGANIC ANALYTICAL SAMPLE RESULTS

SAMPLE NUMBER:	05120213	05120214	05120215	05120216	05120217
STATION ID:	OGS-SS-019	OGS-SS-004	OGS-SS-006	OGS-SS-020	OGS-SS-016
	SAMPLE	SAMPLE	SAMPLE	SAMPLE	SAMPLE
Metals Analysis					
Antimony	<12 C ug/g	12.2 ug/g	<12 C ug/g	<12 C ug/g	<12 C ug/g
Arsenic	14.2 ug/g	13.5 ug/g	16.8 ug/g	14.6 ug/g	15.6 ug/g
Lead	544 ug/g	438 ug/g	542 ug/g	550 ug/g	534 ug/g
Mercury					
Total Cyanide					
Cyanide					

U.S EPA REGION III ANALYTICAL SERVICES & QUALITY ASSURANCE BRANCH

SITE NAME: HAMBURG OLD GAS

STATION

LAB REQUEST #: REQ06057

INORGANIC QUALITY CONTROL RESULTS

	SAMPLE NUMBER:	05113006	05113007	05113008	05113010
	STATION ID:	MW01	RW01	RW-02	RB01
	Units:	RPD	% REC	RPD	% REC
Metals Analysis					
Antimony					(100] D
Arsenic					(105] D
Lead					(101] D
Mercury			[112]	D	
Total Cyanide					
Cyanide		D	[99]		

U.S EPA REGION III ANALYTICAL SERVICES & QUALITY ASSURANCE BRANCH

SITE NAME: HAMBURG OLD GAS
STATION

LAB REQUEST #: REQ06057

INORGANIC QUALITY CONTROL RESULTS

SAMPLE NUMBER: 05120213 05120214
STATION ID: OGS-SS-019 OGS-SS-004

	Units:	% REC	RPD
Metals Analysis			
Antimony		[78]	0
Arsenic		[107]	15
Lead		[TD]	8
Mercury			
Total Cyanide			
Cyanide			

[] = LSF
() = ISF

ORIGINAL
(RED)

Inorganic
Page: 1

Total Cyanide Determinations

Analyst:

Donald M. Brown
LMES Chemist

Method:

Four (4) aqueous samples from HAMBURG OLD GAS STATION (REQ06057) were prepared for analysis using the Midi-Distillation System and analyzed for Total Cyanide (CN⁻) December 6, 2005, by semi-automated colorimetry. The sample and quality control results are presented in the attached tables. The following are the analytical method and internal SOP employed:

Analytical Methods

EPA Method 335.4⁽¹⁾, "Determination of Total Cyanide by Semi-Automated Colorimetry."

Internal SOP R3-QA170.0, "Total Cyanide Analysis of Aqueous and Solid Samples."

⁽¹⁾ Methods for Chemical Analysis of Water and Wastes, EPA 600/4-79-020.

ORIGINAL
(RED)

Inorganic
Page: 2

Antimony (Sb), Arsenic (As) and Lead (Pb) Determinations

Analyst:

F. Khan
LMES Chemist

Methods:

One (1) aqueous and five (5) soil samples from HAMBURG OLD GAS STATION (REQ06057) were prepared for analyses by acid digestion and analyzed for antimony (Sb), arsenic (As) and lead (Pb) by inductively coupled plasma-atomic emission spectrometry (ICP-AES) December 6, 2005. The sample and quality control results are presented in the attached tables. The following are the digestion, analytical techniques, and methods employed:

Digestion Methods

EPA Method 200.2 ⁽¹⁾ and Internal SOP R3-QA155.2, metals digestion procedure.

Analytical Methods

EPA Method 200.7 ⁽¹⁾ and Internal SOP R3-QA159.1, metals by ICP-AES.

⁽¹⁾ EPA Methods for the Determination of Metals in Environmental Samples, May 1994.

Notes:

The soil samples were received as fine, dried particulates. Therefore, percent dry weight determinations were not necessary and these samples were digested "as received".

The "C" qualifier code was applied to the antimony (Sb) result for samples 05120213, 05120215, 05120216 and 05120217 because the detection limit has been raised due to matrix interferences.

ORIGINAL
(RED)

Inorganic
Page: 3

Mercury Determinations

Analyst:

Paul Karl
LMES Chemist

Method:

Four (4) aqueous samples for HAMBURG OLD GAS STATION (REQ06057) were prepared for analysis by potassium permanganate-potassium persulfate digestion and analyzed December 6, 2005 for Mercury (Hg) by cold vapor atomic absorption spectrometry (CV-AAS). The sample and quality control (QC) results are presented in the attached tables. The following are digestion and analytical techniques and methods employed.

Analytical Methods

EPA Methods 245.1 ⁽¹⁾ and Internal SOP R3-QA131.6, Total Mercury using the Leeman PS200 II Mercury Analyzer.

⁽¹⁾ Methods for Chemical Analysis of Water and Wastes, EPA 600/4-79-020.



USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No:
DAS No: R32383
SDG No: L

Date Shipped: 11/29/2005 Carrier Name: FedEx Airbill: 854066120664 Shipped to: US EPA Region 3 OAS/QA Environmental Science Center 701 Mapes Road Fort George Meade MD 20755	Chain of Custody Record		Sampler Signature: <i>Phil S. [Signature]</i>	For Lab Use Only Lab Contract No: _____ Unit Price: _____ Transfer To: _____ Lab Contract No: _____ Unit Price: _____	
	Relinquished By	(Date / Time)	Received By		(Date / Time)
	1 <i>Phil S. [Signature]</i>	11/29/05 14:00	<i>Michael [Signature]</i>		11/30/05 12:30
	2 <i>Michael [Signature]</i>	11/30/05 14:35			
	3		<i>Michael [Signature]</i>		11/30/05 14:35
4					

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		ORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
MC02C1	Monitor Well/ Mark Sindaco	L/G	CN (7), Metals (7)	563 (NaOH), 564 (HNO3) (2)	OGS-MW01	S: 11/29/2005	11:00	C02C1	05113006
MC02C2	Potable Well/ Mark Sindaco	L/G	CN (7), Metals (7)	581 (NaOH), 582 (HNO3) (2)	OGS-RW01	S: 11/29/2005	11:30	C02C2	05113007
MC02C3	Potable Well/ Mark Sindaco	L/G	CN (7), Metals (7)	588 (NaOH), 589 (HNO3) (2)	OGS-RW-02	S: 11/29/2005	11:45	C02C3	05113008
MC02C4	Potable Well/ Mark Sindaco	L/G	CN (7), Metals (7)	595 (NaOH), 596 (HNO3) (2)	OGS-FB01	S: 11/29/2005	12:00	C02C4	05113009
MC02C5	Potable Well/ Mark Sindaco	L/G	Lead Arsen (7)	597 (HNO3) (1)	OGS-RB01	S: 11/29/2005	15:30		05113010

12 of 15

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC: MC02C2	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Custody Seal Intact? <input type="checkbox"/>	Shipment Iced? <input type="checkbox"/>
CN = Cyanide, Lead Arsen = ICP AES (Pb, As, Sb), Metals = ICPMS + ICPAES (Al, Ca, Fe, K, Mg, Na) +				

TR Number: 3-161183375-112905-0001

PR provides preliminary results. Requests for preliminary results will increase analytical costs

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Form
10-104

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Sender's Name Mark Sindona Phone 267 446 2445
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City Hanover State Pg ZIP 19526

2 Your Internal Billing Reference 90030010509001

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Recipient's Name Pat Sawast Phone 410 305 2667
Company U.S. EPA OASQA Lcb Region 3
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4a Express Package Service To add SATURDAY Delivery, see Section 6. Packages up to 150 lbs.
1 ☒ FedEx Priority Overnight Next business morning. 5 ☐ FedEx Standard Overnight Next business afternoon. 6 ☐ FedEx First Overnight Earliest next business morning delivery to select locations.

3 ☐ FedEx 2Day Second business day. 20 ☐ FedEx Express Saver Third business day.
FedEx packages may not include. Minimum charges. One-pound rate.

4b Express Freight Service To add SATURDAY Delivery, see Section 6. Packages over 150 lbs.
7 ☐ FedEx 1Day Freight* Next business day. 8 ☐ FedEx 2Day Freight Second business day. 83 ☐ FedEx 3Day Freight Third business day.
* Call for Confirmation.

5 Packaging
6 ☐ FedEx Envelope* 2 ☐ FedEx Pak* Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak. 3 ☐ FedEx Box 4 ☐ FedEx Tube 1 ☒ Other
* Declared value limit \$500.

6 Special Handling
3 ☐ SATURDAY Delivery Available ONLY for FedEx Priority Overnight, FedEx 2Day, FedEx 1Day Freight, and FedEx 2Day Freight to select ZIP codes. 1 ☐ HOLD Weekday at FedEx Location Not available for FedEx First Overnight. 31 ☐ HOLD Saturday at FedEx Location Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.
Does this shipment contain dangerous goods? One box must be checked.
☒ No 4 ☐ Yes As per attached Shipper's Declaration. ☐ Yes Shipper's Declaration not required. 6 ☐ Dry Ice Dry ice, 3 UN 1845. ☐ Cargo Aircraft Only.
Dangerous goods including dry ice cannot be shipped in FedEx packaging.

7 Payment **BILL TO:** Enter FedEx Acct. No. or Credit Card No. below. Obtain Recip. Acct. No.
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FedEx Acct. No. Credit Card No. Exp. Date
Total Packages 3 Total Weight 11
Total Charges 520
Credit Card Auth.

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☐ No Signature Required Package may be left without obtaining a signature for delivery. 10 ☐ Direct Signature Recipient or recipient's address may sign for delivery. Fee applies. 34 ☐ Indirect Signature If no one is available at recipient's address, anyone at a neighboring address may sign for delivery. Fee applies.
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0816
(10/05)



USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No:

DAS No:

R32383

SDG No:

L

Date Shipped: 12/1/2005 Carrier Name: FedEx Airbill: 850714849141 Shipped to: US EPA Region 3 OAS/QA Environmental Science Center 701 Mapes Road Fort George Meade MD 20755 (410) 335-0000	Chain of Custody Record		Sampler Signature: <i>Mark Sindaco</i>	For Lab Use Only Lab Contract No: _____ Unit Price: _____ Transfer To: _____ Lab Contract No: _____ Unit Price: _____	
	Relinquished By	(Date / Time)	Received By		(Date / Time)
	1	<i>Mark Sindaco 12/10/05 1:00</i>			
	2				
	3				
	4		<i>James G. Hahn 12/2/05 12:45</i>		

INORGANIC SAMPLE No.	MATRDX SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No/ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
MC02D5	Soil (0"-12")/ Mark Sindaco	L/G	Lead Arsen (7)	623 (1)	OGS-SS-019	S: 11/30/2005 10:51		05120213
MC02D7	Soil (0"-12")/ Mark Sindaco	L/G	Lead Arsen (7)	620 (1)	OGS-SS-004	S: 11/29/2005 14:41		05120214
MC02D8	Soil (0"-12")/ Mark Sindaco	L/G	Lead Arsen (7)	621 (1)	OGS-SS-006	S: 11/29/2005 14:44		05120215
MC02E0	Soil (0"-12")/ Mark Sindaco	L/G	Lead Arsen (7)	624 (1)	OGS-SS-020	S: 11/30/2005 10:53		05120216
MC02E1	Soil (0"-12")/ Mark Sindaco	L/G	Lead Arsen (7)	625 (1)	OGS-SS-016	S: 11/30/2005 10:47		05120217

14 of 15

Shipment for Case Complete? <input type="checkbox"/>	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Custody Seal Intact? <input type="checkbox"/>	Shipment Iced? <input type="checkbox"/>
Lead Arsen = ICP AES (Pb, As, Sb)				

TR Number: 3-161183375-120105-0001

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

LABORATORY COPY

F2V5.1.043 Page 1 of 1

ORIGINAL
(1913)

64

200

FedEx US Airbill
ExpressFedEx
Tracking
Number

8507 1484 9141

NO POUCH NEEDED.
See back for peel and stick application instructions.

RECIPIENT: PEEL HERE

1 From This portion can be removed for Recipient's records.

Date 12/6/05 FedEx Tracking Number 850714849141

Sender's Name Mark Sindaro Phone 267 440 2445

Company ETRA THE ZIN INCORPORATED

Address 209 CHELSEA BLVD

City SOUTHWEYN State PA ZIP 15074

2 Your Internal Billing Reference 90030010509001

3 To Recipient's Name Pat Sosinski Phone 410 305 2667

Company U.S. EPA Region 3 OASQA Lab

Recipient's Address 701 Meigs Rd

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address Ft George Meade State Md ZIP 20755

To request a package be held at a specific FedEx location, print FedEx address here.

FedEx
emp: 20766 01DEC05

PRIORITY OVERNIGHT

FRI

TRK# 8507 1484 9141

FORM
0215Deliver By:
02DEC05
AA

20755 -MD-US

BWI
ZM ADWA

Recipient's Copy

4a Express Package Service

☒ FedEx Priority Overnight Next business morning* ☐ FedEx Standard Overnight Next business afternoon* ☐ FedEx First Overnight Earliest next business morning delivery to select locations*

☐ FedEx 2Day Second business day* ☐ FedEx Express Saver Third business day* FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service

☐ FedEx 1Day Freight* Next business day** ☐ FedEx 2Day Freight Second business day** ☐ FedEx 3Day Freight Third business day**

* Call for Confirmation. ** Declared value limit \$500

5 Packaging

☐ FedEx Envelope* ☐ FedEx Pak* Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling

Include FedEx address in Section 3

☐ SATURDAY Delivery Available ONLY for FedEx Priority Overnight, FedEx 2Day, FedEx 1Day Freight, and FedEx 2Day Freight to select ZIP codes ☐ HOLD Weekday at FedEx Location Not available for FedEx First Overnight ☐ HOLD Saturday at FedEx Location Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

☒ No ☐ Yes Ad label attached Shipper's Declaration ☐ Yes Shipper's Declaration not required ☐ Dry Ice Dry Ice & UN 1845 ☐ Cargo Aircraft Only

Dangerous goods (including Dry Ice) cannot be shipped in FedEx packaging.

7 Payment Bill to: Enter FedEx Acct. No. or Credit Card No. below. ☐ Obtain Recip. Acct. No.

☒ Sender ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Attach this to Section 1 and be sealed

Total Packages 1 Total Weight 5 Total Charges 466

Credit Card Auth

* Our liability is limited to \$100 unless you declare a higher value. See the FedEx Service Guide for details.

15 of 15

(C-39)
9/1/00

ORIGINAL
(RED)

APPENDIX C
SUMMARY OF ANALYTICAL RESULTS
(One Page)

Original
(8/10)

XRF Results from Old Hamburg Gas Station

Sample ID (OGS-SS)	Date Sampled	Results Pb (ppm)	Results As (ppm)	Results Sb (ppm)	Duplicate results
A001	11/29/2005	1190			
A002	11/29/2005	269			
A003	11/29/2005	95			
A004	11/29/2005	399	13.5	12.2	
A005	11/29/2005	1110			
A006	11/29/2005	504	16.8		
A007	11/29/2005	101			
A008	11/29/2005	808			
A009	11/29/2005	1240			
A010	11/29/2005	2440			
A011	11/29/2005	2720			
A012	11/29/2005	261			
A013	11/30/2005	116			
A014	11/30/2005	116			
A015	11/30/2005	1020			
A016	11/30/2005	643	15.6		
A017	11/30/2005	3080			
A018	11/30/2005	3610			
A019	11/30/2005	439	14.2		
A020	11/30/2005	482	14.6		
A021	11/30/2005	4048			
A022	11/30/2005	142			106
A023	11/30/2005	180			
A024	11/30/2005	267			
A025	11/30/2005	151			
A026	11/30/2005	151			
A027	11/30/2005	76			
A028	11/30/2005	125			138
A029	11/30/2005	109			
A030	11/30/2005	96			
A031	11/30/2005	96			
A032	11/30/2005	45			
A033	11/30/2005	80			
A034	11/30/2005	107			
A035	11/30/2005	50			
A036	11/30/2005	134			
Z001(A022)	11/30/2005	106			
Z002(A028)	11/30/2005	138			
X001	11/29/2005	202			
X002	11/29/2005	704			
X003	11/30/2005	6650			
X004	11/30/2005	5008			
X005	11/30/2005	16794			
Y001	11/29/2005	3840			
Y002	11/30/2005	8640			
Y003	11/30/2005	6349			
Y004	11/30/2005	27187			
Y005	11/30/2005	43			

Notes:

Results measured in parts per million (ppm).

All sample identifiers (ID) begin with OGS-SS-

As = Arsenic Pb = Lead Sb = Antimony

A = Surface samples

Y= Subsurface samples collected at 1 foot below ground surface

X = Bias samples

Z = Duplicate sample

= Greater than the 400 ppm lead residential action level.

= Greater than the residential risk-based concentration (RBC) of 0.4 ppm for residential arsenic

ORIGINAL
(RED)

APPENDIX D
DATA QUALITY REPORT
(Five Pages)



TETRA TECH EM INC.

Orig
(REP)

December 30, 2005

Mr. Greg Ham (3HS32)
Enforcement On-Scene Coordinator (OSC)
U.S. Environmental Protection Agency
1650 Arch Street
Philadelphia, PA 19103-2029

Subject: Hamburg Old Gas Station Site - Data Quality Report
EPA Contract No. EP-S3-05-02
Technical Direction Document No. E03-001-05-09-001
Document Tracking No. 0077

Dear Mr. Ham:

This report provides a general review of the Tetra Tech EM Inc. (Tetra Tech) x-ray fluorescence (XRF) analytical data package for the 48 soil samples collected at the Hamburg Old Gas Station site in Hamburg, Berks County, Pennsylvania on November 29 and November 30, 2005. The U.S. Environmental Protection Agency (EPA) requested that the samples be analyzed for lead using the Niton Model 700 XRF. As part of the XRF quality assurance process, 10 percent of the samples (five samples) were sent to the U.S. Environmental Protection Agency Region III Laboratory in Ft. George Meade, Maryland for confirmation analysis. This report focuses on the review of the XRF data only.

The 48 samples were analyzed for lead by Tetra Tech using EPA SW-846, Method 6020 from "Test Methods for Evaluating Solid Waste," September 1986.

The Tetra Tech data reviewer did not participate in the collection, analysis, or preparation of the XRF data package. EPA requested that the XRF data be reviewed in accordance with the EPA "Region III Modifications to National Functional Guidelines for Inorganic Data Review Multi-Media, Multi-Concentration," April 1993 and EPA "Innovative Approaches for Validation of Inorganic Data Standard Operating Procedures," June 1995, level IM2 for inorganic compounds. There were no problems associated with the data package that caused a data qualifier to be applied.

Tetra Tech recommends that EPA accept the XRF data as presented. Please feel free to contact me at (610) 364-2129 regarding any aspect of this report.

Sincerely,

Marian Murphy
Senior Chemist

cc: TDD File

HAMBURG OLD GAS STATION XRF DATA
FOR SAMPLES COLLECTED FROM NOVEMBER 29 TO NOVEMBER 30, 2005

0712
(RED)

XRF Run No.	Sample ID	XRF Operator	Nominal Seconds	Date and Time of Analysis	Pb (ug/g)	Pb Error	Lab Confirmation Result (ug/g)	% D
14	A001	MJS	80.2	12/1/2005 12:22	1189.6	47		
15	A002	MJS	91.7	12/1/2005 12:27	269.4	23		
16	A003	MJS	97.9	12/1/2005 12:32	94.5	15.4		
17	A004	MJS	89	12/1/2005 12:37	398.6	27.1	438	-9.9
18	A005	MJS	90.6	12/1/2005 12:43	1109.6	42.3		
19	A006	MJS	90	12/1/2005 12:48	504.4	29.8	542	-7.5
20	A007	MJS	90.2	12/1/2005 12:53	100.7	15.8		
21	A008	MJS	90	12/1/2005 12:58	808.4	36.7		
24	A009	MJS	74.9	12/1/2005 13:14	1240	48.4		
25	A010	MJS	74.9	12/1/2005 13:19	2440	72.5		
26	A011	MJS	86.3	12/1/2005 13:23	2720	76.8		
27	A012	MJS	144.4	12/1/2005 13:28	261.2	16.5		
28	A013	MJS	89	12/1/2005 13:36	116.4	15.1		
29	A014	MJS	96.7	12/1/2005 13:41	116.1	14.8		
30	A015	MJS	92.1	12/1/2005 13:47	1020	40.2		
31	A016	MJS	89.7	12/1/2005 13:52	643.2	31.3	534	17.0
32	A017		80.7	12/1/2005 13:57	3080	80.8		
33	A018		74.6	12/1/2005 14:03	3609.6	95.6		
34	A019		89.9	12/1/2005 14:07	439.2	27.9	544	-23.9
35	A020		89.9	12/1/2005 14:12	482	29	550	-14.1
36	A021		84.1	12/1/2005 14:17	4048	96.4		
37	A022		89.6	12/1/2005 15:30	141.6	15.8		
38	A023		84.4	12/1/2005 15:35	179.6	18.2		
39	A024		197	12/1/2005 15:40	267.4	13.6		
40	A025		75.1	12/1/2005 15:50	151.2	17.7		
41	A026		74.9	12/1/2005 15:55	150.8	17.3		
42	A027		90.4	12/1/2005 15:59	75.5	12.6		
45	A028		94.6	12/1/2005 16:17	124.7	13.9		
46	A029		91.3	12/1/2005 16:22	108.5	14.1		
47	A030		109.2	12/1/2005 16:28	95.7	12		
48	A031		164.4	12/1/2005 16:43	96.1	9.8		
49	A032		69.8	12/1/2005 16:53	45.3	12.3		
50	A033		80.9	12/1/2005 16:57	79.7	13.5		
51	A034		75	12/1/2005 17:01	107	15.4		
52	A035		76.8	12/1/2005 17:06	49.6	12.7		
53	A036		80.1	12/1/2005 17:12	133.7	16.5		
54	Z001		74.9	12/1/2005 17:17	106.2	15.4		
55	Z002		75.1	12/1/2005 17:21	138.3	17.7		
56	X001		112.3	12/1/2005 17:26	202.4	16.9		
57	X002		91.6	12/1/2005 17:32	704.4	33.9		
58	X003		70.8	12/1/2005 17:37	6649.6	150		
59	X004		70.3	12/1/2005 17:41	5008	130		
60	X005		60.8	12/1/2005 17:46	16793.6	370		
61	Y001		61.9	12/1/2005 17:49	3840	110		
62	Y002		66.2	12/1/2005 17:53	8640	190		
66	Y003		63.2	12/1/2005 18:11	6348.8	160		
67	Y004		124.8	12/1/2005 18:14	27187.2	430		
68	Y005		91.3	12/1/2005 18:22	42.5	11		

Notes:

Samples collected on November 29 and November 30, 2005

%D = Percent difference between XRF result and laboratory result.

<LOD = below detection limit of XRF

HAMBURG OLD GAS STATION XRF DATA
FOR SAMPLES COLLECTED FROM NOVEMBER 29 TO NOVEMBER 30, 2005
CONTINUING CALIBRATION DATA

ORIGINAL
(RED)

XRF Run #	Sample ID	XRF Operator	Nominal Seconds	Date and Time of Analysis	Lead Concentration Results in parts per million	Instrument Error Reading	% D
3	SRM8704	MJS	91	12/1/2005 11:25	131.3	18.1	-12.47
23	SRM2586	MJS	91.2	12/1/2005 13:09	364.4	27.9	-15.65
44	SRM2586		91	12/1/2005 16:11	371.2	28.1	-14.07
65	SRM2586		90.2	12/1/2005 18:05	373.8	28.3	-13.47
70	SRM8704		101.6	12/1/2005 18:32	136	17.6	-9.33

Notes:

XRF Run # = order samples were analyzed

SRM = Standard Reference Material

SRM8704 actual lead concentration equal to 150 ppm

SRM2586 actual lead concentration equal to 432 ppm

% D = Percent difference from the true value of SRM

**HAMBURG OLD GAS STATION XRF DATA
FOR SAMPLES COLLECTED FROM NOVEMBER 29 TO NOVEMBER 30, 2005
BLANK DATA**

01/13/06
(RED)

XRF Run #	Sample ID	XRF Operator	Nominal Seconds	Date and Time of Analysis	Lead Concentration Results in parts per million	Instrument Error Reading
2	BLANK	MJS	91.3	12/1/2005 11:20	<LOD	10.5
22	BLANK	MJS	89.8	12/1/2005 13:04	<LOD	9.9
43	BLANK		106.9	12/1/2005 16:05	<LOD	9.75
63	BLANK		75.1	12/1/2005 17:57	<LOD	11.1
68	BLANK		94.8	12/1/2005 18:27	<LOD	9.6

Notes:

<LOD = Below instrument detection Limit

XRF Run # = order samples were analyzed

Blank samples are 99.5 % Silicon Dioxide

HAMBURG OLD GAS STATION XRF DATA
FOR SAMPLES COLLECTED FROM NOVEMBER 29 TO NOVEMBER 30, 2005
PERCENT RELATIVE STANDARD DEVIATION (%RSD) DATA

OPIC
GRED

XRF Run #	Sample ID	XRF Operator	Nominal Seconds	Date and Time of Analysis	Lead Concentration Results in parts per million	% RSD
4	SRM2586	MJS	90.4	12/1/2005 11:30	376	
5	SRM2586	MJS	90.2	12/1/2005 11:35	379.4	
6	SRM2586	MJS	91	12/1/2005 11:41	389.8	
7	SRM2586	MJS	91	12/1/2005 11:46	367	
8	SRM2586	MJS	90.3	12/1/2005 11:51	382	
9	SRM2586	MJS	90.2	12/1/2005 11:55	374.8	
10	SRM2586	MJS	91.1	12/1/2005 12:00	385.6	1.98

Notes:

XRF Run # = order samples were analyzed

SRM = Standard Reference Material

SRM2586 actual lead concentration equal to 432 ppm

% RSD = Relative standard deviation

ORIGINAL
(RED)

APPENDIX E
PHOTOGRAPHIC DOCUMENTATION
(Three Pages)

ORIGINAL
(RED)

Photographic Documentation

Client: U.S. EPA Region 3
Site Name: Old Hamburg Gas Station Site
Location: Hamburg, Pennsylvania

Prepared by: Tetra Tech EM Inc.
Photographer: Mark Sindaco
TDD Number: E03-001-05-09-001

Photograph No. 1

Photograph Date: 11/29/05

Orientation: South

Time: 1500

Description: View of a large piece of casing exposed next to the trunk of a tree



Photograph No. 2

Photograph Date: 11/29/05

Orientation: South

Time: 1500

Description: Miscellaneous battery parts found on the property at sample location OGS-SS-X005



ORIGINAL
(RED)

Photographic Documentation

Client: U.S. EPA Region 3
Site Name: Old Hamburg Gas Station Site
Location: Hamburg, Pennsylvania

Prepared by: Tetra Tech EM Inc.
Photographer: Mark Sindaco
TDD Number: E03-001-05-09-001

Photograph No. 3

Photograph Date: 11/30/05

Orientation: west

Time: 0920

Description: View of
sampling equipment and GPS
at a sampling location



Photograph No. 4

Photograph Date: 11/30/05

Orientation: North

Time: 1430

Description: START picking
up flags from sample locations



Photographic Documentation

Client: U.S. EPA Region 3
Site Name: Old Hamburg Gas Station Site
Location: Hamburg, Pennsylvania

Prepared by: Tetra Tech EM Inc.
Photographer: Mark Sindaco
TDD Number: E03-001-05-09-001

Photograph No. 5

Photograph Date: 11/30/05

Orientation: west

Time: 1600

Description: View of monitoring well sample onsite



Photograph No. 6

Photograph Date: 11/30/05

Orientation: East

Time: 1600

Description: View of structures on property from the shoulder of State Street

